FEBRUARY 20, 1961

PAPER TRADE JOURNAL

SPECIALLY Prepared Report—The Market Pulp Picture Since WW II

Do Current Finishing Practices Boast of Progressive Thinking?

Removing Solids From Deinking Wastes at Combined Locks Paper

What Ingredients to Include in That Pump's Check-Up Schedule!

Contents of the Week, pages 4-5

What's in the name? Everything—when it comes to the engineering of the industrial building project. Whether you call it a firm of consulting engineers . . . or a professional engineering firm . . . or an independent firm of engineers—it describes that kind of organization dedicated to the undivided purpose of best representing your interests at every phase of your modernization or expansion program.

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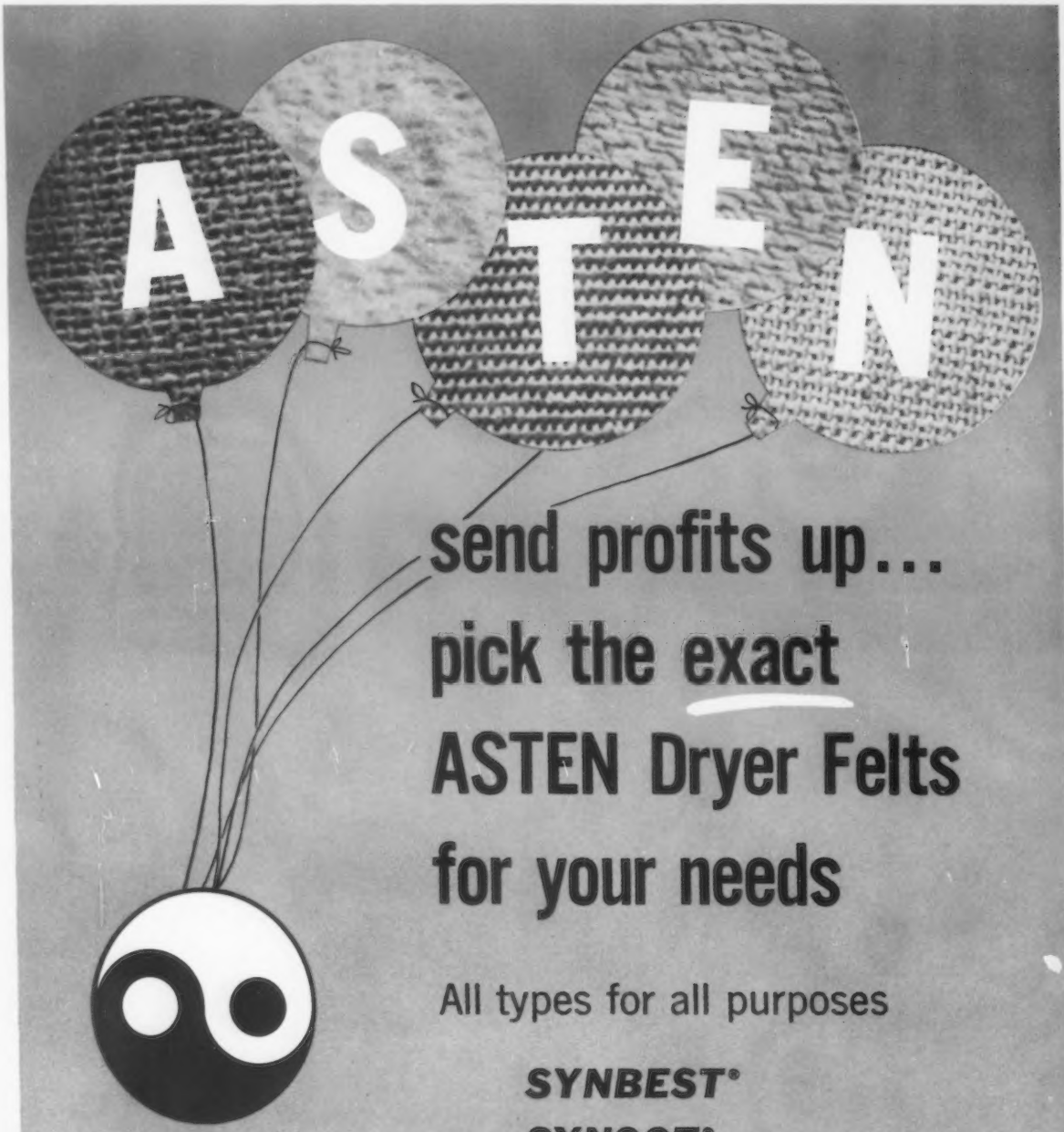

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"THIS PULPER has exceeded our fondest expectations of what a pulper would do," reports an engineer at a large mid-western paper company.*

No wonder! Since an Emerson Triple Attack Pulper was placed in service at this mill, the time required to break up wet strength broke has been cut from 6 hours (beater) to 1¼ hours. Power consumption dropped 400% — from 25 HP/Tons/Day to 6¼ HP/Tons/Day. Slushing took 2 hours in a beater. Now, the pulper does it better in 40 minutes.

The Emerson Pulper requires but a single operator — takes a 2000 lb. charge at one time. Maintenance is negligible. Requires no replacement parts. Conserves valuable floor space. Clean operating — no splash. Heat loss is slight. Dumping is fast and complete.

The Emerson Triple Attack Pulper is noted for its thorough, uniform defibering in the shortest cycle time. This is achieved by advanced engineering that combines a lobe-shaped, tapered tub wall, conical bottom and heavy, balanced action, bottom rotor. In operation, four stock flows are developed which form an interweaving, overlapping pattern with no "dead spots." All fibers in every charge receive an equal share of the applied energy. *Triple attack* pulping results from 3 distinct defibering actions — impellor to fiber, fiber to tub wall, and fiber to fiber.

Emerson Triple Attack Pulpers come in nine sizes — 100 to 8000 lb. units. Each unit defibers virgin or waste stock at 8% to 12% consistency and delivers fast, uniform defibering with a minimum of required energy.

For full information on how the Emerson Triple Attack Pulper can help you improve production and cut operating costs, get in touch with The Emerson Manufacturing Co., Division of John W. Bolton & Sons, Inc., Lawrence, Massachusetts.

*Name on request.

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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

Week of February 20, 1961
Vol. 145, No. 8

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FEATURES OF THE WEEK

Market Pulp Prices 1945-1960. Their Past, Present and Outlook

Paper pulp prices now stand at the same level or below those prevailing in 1951. How did this strange economic anomaly occur? What of the future?—John C. W. Evans **24**

How Combined Locks Paper Handles Deinking Waste

An operating report on this company's method of alleviating a difficult waste disposal problem—J. F. Whalen **30**

"After I Put the Right Pump on the Right Job, Then What?"

Set up a maintenance schedule and stick to it! This will depend on type and rate of production, but should include bearing lubrication, packings, alignment, and wetted wearing parts—L. B. Timmerman **32**

Let's Rationalize Sheet Production

Present finishing operations are open to all the hesitancy, delay and carelessness to which operating labor is subject. Proposed is a continuous operation from entering roll to packaged sheets—D. C. Beaulieu **36**

Batch Debarking of Undersize Pulpwood Showing Promise

A batch type debarker, which may have application in this country, is proving out for a Norwegian producer—J. A. Holekamp **40**

SUBSCRIPTIONS →

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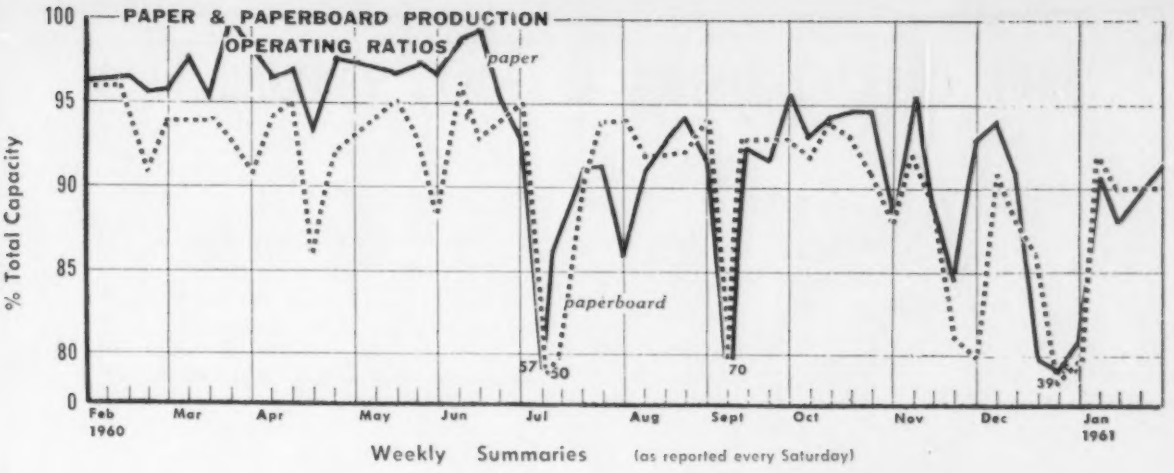

NEWS OF THE WEEK

New CWP&P Building Progresses Rapidly . . . Dominion Tar Makes Offer to St. Lawrence & Howard Smith Shareholders . . . Connecticut Valley Meeting Dates Selected . . . . . .

Thilmany Advances Mill Personnel . . . Inst. of Paper Chemistry Appoints Three . . . Olin Mathieson Paper Div. Promotes Rowland . . . Sandwell Appoints Locke V-P, Asian Operations . . . Officers Elected at Thilmany Pulp & Paper . . . . . .

A.N.D. Mill Manager Retires After 50 Years . . . MacMillan, Bloedel & Powell V-P Resigns . . . Western Kraft Plans New Bag Plant . . . One-Time Carbon Paper Ass'n Meets in New York . . . Millprint Fills New Vice President Post . . . . .

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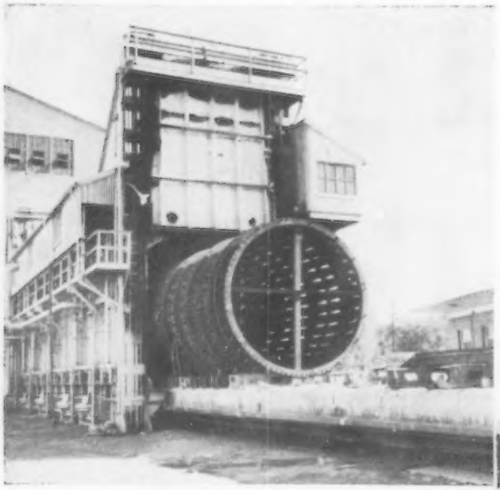
REMEMBER THESE DATES

Paper Week in New York — FEBRUARY 20-23

National Paper Trade Ass'n Annual Convention, Waldorf-Astoria Hotel, New York — MARCH 26-29

Technical Ass'n of the Pulp and Paper Industry, 12th Annual Coating Conference, Statler-Hilton, Buffalo, N. Y. — MAY 22-24

SOME CHARACTERISTICS OF F.M.P. BARKING DRUM

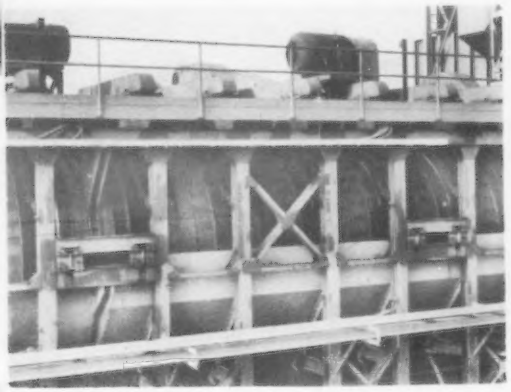


Heavy Duty Drum Shells

Fabricated from M-bars 1″ thick at point of wear welded to heavy ship channel rings.

Shop-welded and stress-relieved before shipment.

Maximum span between supports 75″. Maximum overhang 35″.



Versatile Operation

Drums can be furnished for either dry, or wet, or combined operation at drum speeds up to 8 RPM for 12′ D. drum and for logs up to 8′ in length.

Combination drums are furnished with dividing bulkhead between dry and wet section, as shown by arrow in illustration.

Lowest Installation Costs

Barking drum furnished with completely shop-assembled drum shells.

Only minimum foundations required. See photograph.

OTHER F.M.P. PULP EQUIPMENT

Log Barker — Hardwood Pre-Barker — Thawing Drum — Washing Drum — Bark Press — Refuse Press — Digester Circulating Systems — Blow Heat and Turpentine Recovery Systems

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THE PUMP EASIEST TO OVERHAUL DURING A WIRE CHANGE

Your maintenance men can get to the rotating element of this centrifugal pump in minutes.

The secret's in the diagonally split casing. Its hinged cover is a big timesaver—swings away easily when bolts are removed and nuts loosened—helps prevent torn gaskets.

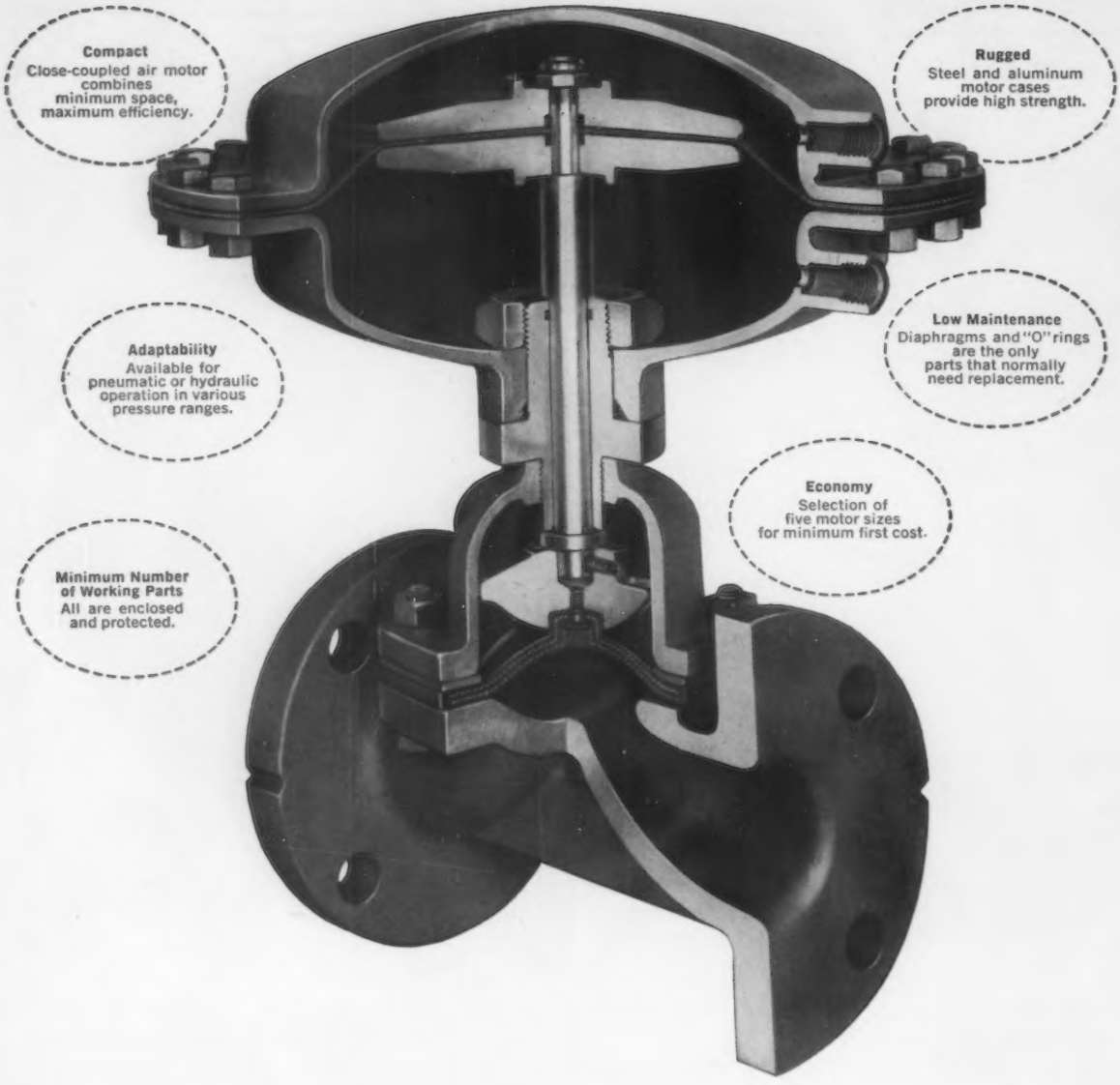
The casing design allows inspection or replacement of parts or rotating element—including bearing assembly—without breaking a pipe connection or disturbing alignment. It features standard bolts—there are no special studs to break off or get lost.

So, when service is needed, your men can get in and out fast during a wire change with minimum risk of holding up production. That's why so many mills standardize on Goulds Model 3135 for stock.

For more detailed information, send for Bulletin 723.1. It gives performance curves, conversion chart of mill output, an illustrated step-by-step description on how to remove the rotating element, and other useful information.

Goulds Pumps, Inc., Dept. PT-21, Seneca Falls, New York.

GOULDS PUMPS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Close-coupled air motor combines minimum space, maximum efficiency.
Rugged
Steel and aluminum motor cases provide high strength.
Adaptability
Available for pneumatic or hydraulic operation in various pressure ranges.
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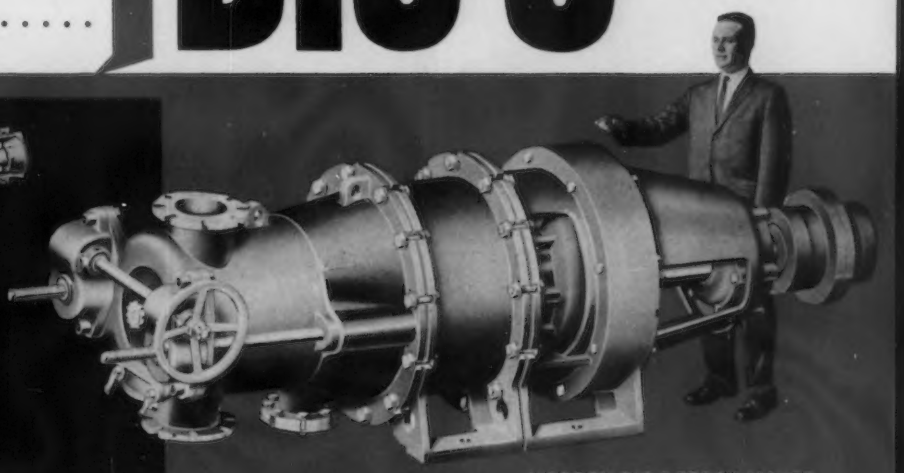
- *Improved Treatment*
- *Operating Economy with the Morden . . . . .*

BIG 8 REFINER

FIGURE 5. Big 8 Stock-Maker Refiner, illustrating reverse flow, cushioning principle. Stock enters hollow rotor at A, is forced between bars on rotor B and shell C where the opposing internal flow pressures hold a full cushion of stock, permitting heavy bar loading for maximum brushing, combing and fraying of the fibers. Cutting action is at a minimum.



MORDEN BIG 8 STOCK-MAKER
300-400 CONNECTED H. P.

FIGURE 1. Untreated pulp. Freeness, 635 Canadian Standard. Tear factor, 85.

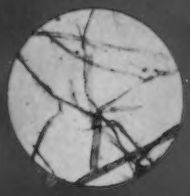


FIGURE 2. Medium treatment by Morden Stock-Maker. Freeness, 300 Canadian Standard. Tear factor, 85.

FIGURE 3. Medium jordaning treatment. Freeness, 275 Canadian Standard. Tear factor, 55.

FIGURE 4. Heavy treatment by the Stock-Maker. Freeness, 75 Canadian Standard. Tear factor, 60.

The perfect refiner is yet to be built. But, the development which comes closest to refining perfection, customers tell us, is the MORDEN BIG 8 REFINER. Here is the BIG MORDEN 300-400 H. P. engine which provides the maximum in stock treatment. . . . Good Mullen • Improved tear retention • Excellent fold and tensile development • Printability specs met with ease through precision stock treatment.

THE SECRET IS MORDEN'S DEVELOPMENT OF THE FIBERS. The incompatibles, Good Mullen and Good Tear Retention at Minimum Freeness Reduction, are made compatible in the MORDEN BIG 8 REFINER through its brushing, combing action, which develops and frays the fibers with minimum cutting. The photomicrographs tell the story. FIGURE 1 shows unbleached sulphite prior to refining. FIGURE 2, the same fibers after medium treatment in the Morden Stock-Maker Refiner. Note the fraying and brushing imparted to each fiber. FIGURE 3, the same fibers treated to about the same level of freeness with a jordan. Notice how the fibers are cut, not frayed. FIGURE 4, the same fibers as Figure 2, except that the MORDEN refining treatment has been carried to much lower freeness. Even so, the tear in Figure 4, with twice as much MORDEN treatment, is better than figure 3 with medium jordaning.

HOW FIBER DEVELOPMENT IS ACHIEVED AND CUTTING MINIMIZED. Morden's unique reverse-flow principle, with opposing internal flow pressures, **provides a constant cushion of stock between the shell and rotor bars,** permitting maximum brushing and fraying, with minimum cutting of the fiber. SEE FIGURE 5. Result: GOOD MULLEN and EXCELLENT TEAR RETENTION at MINIMUM FREENESS DROP, INCREASED MACHINE SPEED & DRYER CAPACITY FOR INCREASED DAILY PRODUCTION.

POWER SAVINGS. Over and over again customers tell us that Morden Stock-Makers provide better stock treatment, yet consume less power . . . **in some cases savings up to 50% are reported.** A 400 H. P. MORDEN BIG 8 uses only 70 to 90 of its connected H. P. for idling load, leaving 310 to 330 H. P. for efficient stock treatment. Compare this efficiency with any other conical refiner, where usually up to 50% of applied energy is consumed for idling load.

LOWER INVESTMENT COST. When all other costs are going up, Morden has improved the design, retained the efficiency but has reduced the cost approximately 20%. Built-in motor is a cost and space-saving option.

LOWER MAINTENANCE COST. Chrome steel fillings are recommended for furnishes in a pH range of 6 or above. Bronze fillings in furnishes with pH 6 and below. Fillings usually give 3 to 5 or more years of trouble-free service. Precision-machined cast fillings require no grinding-in. Down time cut to a minimum. Constant load maintained easily. Superior fillings and fine machine design result in minimum maintenance.

Mordenize . . . . .

YOUR STOCK SYSTEM

. . . send for full information on the MORDEN BIG 8 REFINER.

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You will want the *right* stone to meet the special requirements of your mill. It's just as simple as this. Consult your Norton pulpstone engineer. He will be glad to visit your mill and to study your problem. You can rely on his judgment and experience to recommend the Norton pulpstone which is exactly right for your type of wood, your type of grinder and the type of pulp you want to produce.

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Trends

Far East and Europe Make Big Gains as World Use Rises

The Far East and Western Europe made the biggest gains in 1960, as world consumption of paper and board rose in all areas to a total of 4% over the previous year, according to a report issued by APPA. The report also showed marked increases in world output, export and production facilities. World paper and board consumption for 1960 was an estimated 83 million tons. Exports totaled about 13.5 million tons. World output was a little below 83 million, and to meet increased consumption demand there was some reduction of inventories. Most of the new tonnage in world consumption was accounted for by Western Europe and Asia. North America showed a moderate rise. Some increase was registered by every world area, including the communist-dominated regions. Still accounting for more than 50% of world consumption, North America continued to be the leading user of paper and board. The United States accounted for 47% of the world's consumption and about 91% of North America's share.

Du Pont Pulling Out of Rayon Textiles

Of particular significance to our industry is the recent Du Pont announcement that it is closing down its last rayon textile plant next summer. The company has been progressively pulling out of this business for a number of years. Du Pont will, however, continue to make tire cord rayon.

Folding Boxes Off in January

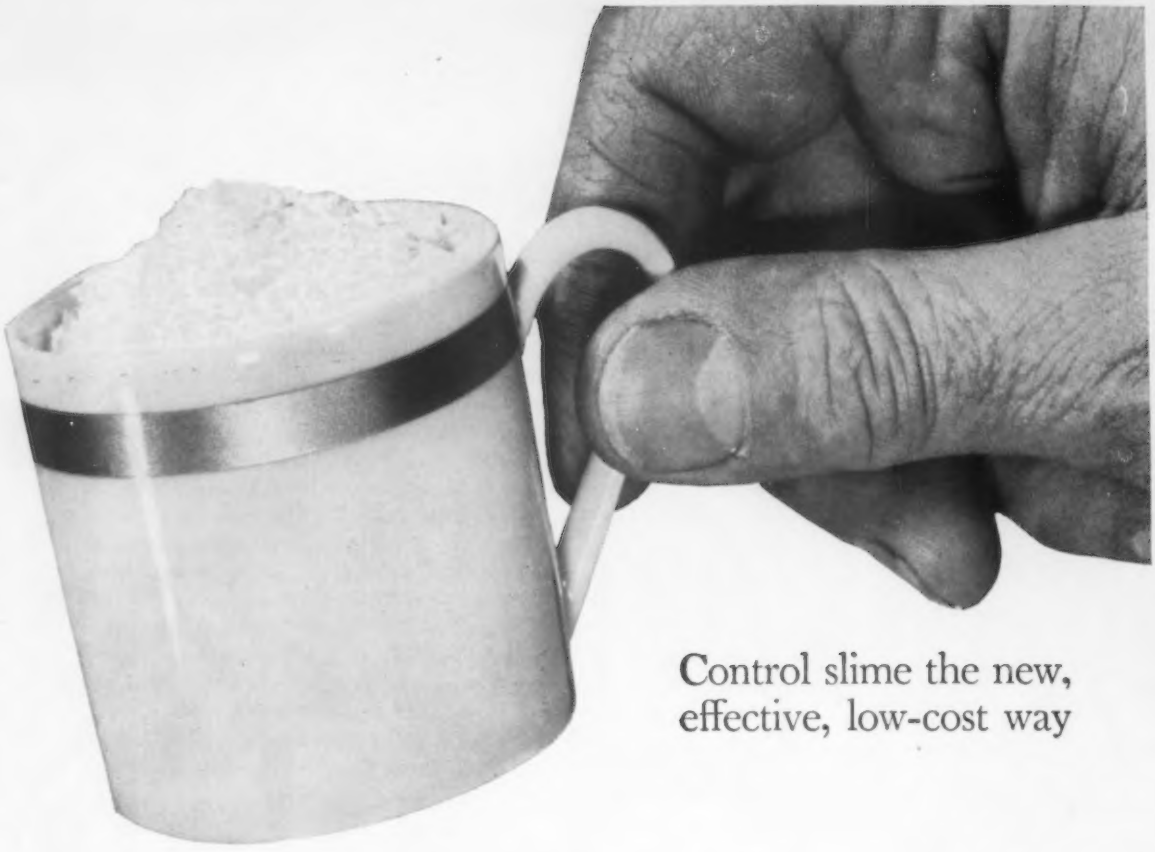
Folding carton volume in January 1961 was down 1.5% from year ago shipments. Tonnage was off 1.2% from the shipments recorded in January, 1960. New orders for folding cartons placed in January, 1961 were 6.2% less in dollar volume and 6.1% under the tonnage of bookings recorded in January of 1960.

Waste Paper Outlook Possible Rise

The current good level of mill operation coupled with the heavy snowfall in the northeast could have considerable effect on the waste paper markets there. The snow storms have interfered with paper collection. Continued bad weather and heavy demand would result in an upward movement in waste paper prices in this area. Some stir is already evident.

Looking at Industry's Principal Problems

Feature articles in this week's issue neatly cover four of the principal problems of our industry; prices, finishing, waste disposal and maintenance. See page 4 for details.



Control slime the new, effective, low-cost way

Just this much C2® slimicide for a ton of pulp!

- Newsprint
- Unbleached, semi-bleached and bleached kraft
- Food and paper board
- Printing and book papers

EFFECTIVE. Extensive mill use proves conclusively that C2, the new Mathieson slimicide, is the most effective product for acidic white water systems. Only ¼ pound of C2 per ton of pulp (often even less) is a common dosage rate for rapid, sustained control. Actual cost per ton: about 10-20¢. Resultant action: continuous generation of chlorine dioxide throughout the white water system . . . a distinct advantage over other slimicides which function only near point of application.

Other C2 advantages: no foaming at the head box . . . will not darken pulp . . . will not affect dyes at recommended dosage rates.

EASY-TO-USE. C2 is readily soluble in water and is non-corrosive to equipment.

C2 is shipped in highly-soluble, dry-flake form in quantities from one-pound samples to 100-pound drums in truckloads and carloads. Also, 50% solution is supplied in tank cars and trucks.

FDA CLEARANCE. C2 is our trademark for sodium chlorite. The Food And Drug Administration has expressed the opinion that this chemical is not a food additive when used as a slimicide as it cannot reasonably be expected to become a component of food through this use.

See C2 work in your mill—call for a demonstration.

Olin Mathieson

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Chemicals Division, Baltimore 3, Maryland

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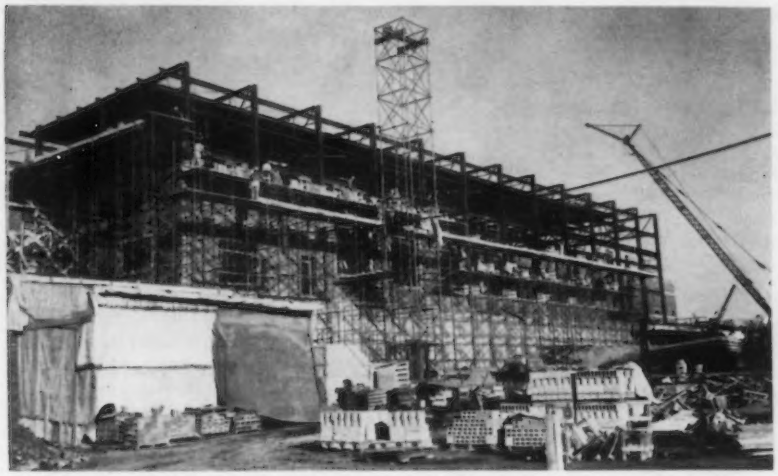
PAPER TRADE JOURNAL

WEEK OF FEBRUARY 20, 1961



New CWP&P Building Progresses Rapidly

Rapid progress on the new coated paper machine building at Consolidated Water Power & Paper Co.'s Wisconsin River Division, Whiting, is shown in the above photograph taken a little more than three weeks after the first delivery of steel. Roofing, bricks and structural steel extend southward to form the 432-foot-long building which will house Consolidated's 11th enamel paper machine. The addition of the new machine later this year will increase the company's annual enamel paper capacity beyond the 300,000 ton mark. Wisconsin River Division now has two enamel machines. Other machines for paper production are located at mills in Wisconsin Rapids and Biron.

Dominion Tar Makes Offer to St. Lawrence & Howard Smith Shareholders

In a letter to shareholders of Dominion Tar & Chemical Co., W. N. Hall, president, states that, following approval on February 10, of the increase in share capital from 10,000,000 to 20,000,000 common shares, and the issue of Supplementary Letters Patent covering the increase, offers have been sent to shareholders of St. Lawrence Corp. and to minority shareholders of Howard Smith Paper Mills, Ltd., to exchange their shares in these companies for shares of Dominion Tar & Chemical. The decisions of directors of Dominion Tar to make these two offers are motivated by a conviction that the three companies working together could make substantially more profit than they can working independently. The principal products of the three companies are complementary rather than competitive. Dominion Tar will be able to provide St. Lawrence and its subsidiaries with a market for several million dollars of containers and board annually and, in the course of doing so, will strengthen its own position by removing its dependence on other suppliers. The combined companies will have the largest sales and widest product range of any independent Canadian organization in the pulp and paper field.

Dominion Tar has recently shown its continuing confidence in the future of the building and construction materials industry by acquiring the business of Prairie Fibreboard, Ltd., of Saskatoon, which gives Dominion Tar a board manufacturing plant in Western Canada. In recent years it has become more difficult to compete in this market with shipments from its plant at Donnacona, Que.

Connecticut Valley Meeting Dates Selected

The following meeting dates have been established for the Connecticut Valley Division of Paper Industry Management Ass'n., according to Chairman Elect Peter W. Oliva, C. H. Dexter & Sons, Inc., Windsor Locks, Conn.:

Spring Meeting—mill visitations and steak roast at Woronoco Park, Woronoco, Mass., Thursday, May 18, 1961.

Joint PIMA/TAPPI Meeting — Equinox House, Manchester, Vt., Thursday, October 19, through Saturday, October 21, 1961.

Winter Meeting—Publick House, Sturbridge, Mass., Thursday, January 11, 1962.

"Details of the several meetings will be published well in advance of the events," Mr. Oliva said.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending February 4, 1961, at 91.4 per cent, compared with 89.9 per cent, revised, for the preceding week. The ratio was 97.8 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending February 4, 1961, at 90 per cent, compared with 90 per cent for the preceding week and 96 per cent for the corresponding week a year ago.

(Detailed Statistics on page 51)

ADVANCE NEWS OF PAPER WEEK

84th Annual Paper Week Highlights

Waldorf-Astoria Hotel—February 19-23, 1961; Registration in the Chinese Room, 4th Floor; Press Room—4th Floor—Park Avenue Suite (4-M).

MONDAY—FEBRUARY 20—2:45 P.M. —ASTOR GALLERY

Export Committee — 13th Annual Open Meeting

Theme: "Assessing Our Export Potential."

Presiding: G. J. Ticoulat, Senior Vice President, Crown Zellerbach Corp.

Speakers: "The Export Situation in Pulp"—L. P. Turcotte, president, Puget Sound Pulp and Timber Co.;

"GATT and Trade Blocs, Their Effects on Markets"—H. B. McCoy, president, Trade Relations Council of the United States, Inc.;

"Researching Foreign Markets" —C. Noble, Director of Research, Kimberly-Clark Corp.

NOTE: A special study, "World Per Capita Paper Consumption—1959, 1954 and 1937," will be released at meeting time.

TUESDAY—FEBRUARY 21—9:30 A.M. —BASILDON ROOM

Materials Committee — 15 Annual Open Meeting

Theme: "How Does Food Additives and Anti-Trust Legislation Affect Purchasing."

Presiding: A. J. Strauss, director of purchasing, Riegel Paper Corp., chairman, Materials Committee.

Speakers: "Review of Food Additives Legislation" R. C. Wilcox, Vice President, Marathon, a division of American Can Co.

"Anti-Trust Legislation" J. E. Sheehy, director, Bureau of Litigation, Federal Trade Commission.

TUESDAY—FEBRUARY 21—12:30 P.M. —GRAND BALLROOM

42nd Anniversary Luncheon—Salesmen's Ass'n. of the paper industry

Speaker: General Lucius D. Clay, chairman of the board and the chief executive officer of Continental Can Co.

THURSDAY—FEBRUARY 23—2:30 P.M. —SERT ROOM

Open Industry Meeting

Theme: "World Opportunities for Paper."

Presiding: H. E. Whitaker, president, American Paper and Pulp Ass'n., chairman of the board, Mead Corp.

Speakers: "Canadian—U. S. Relationships"—R. M. Fowler, president, Canadian Pulp and Paper Ass'n.

"The Gold Crisis"—Dr. Robert A. Kavesh, Asst. Professor of Economics and Finance, Graduate School of Business Administration, N. Y. University.

THURSDAY—FEBRUARY 23—7:15 P.M. —GRAND BALLROOM

84th Annual Dinner

Centennial Salute to the Writing Paper Manufacturers Ass'n.

Highlights of N.C.S.I. Meetings

Special emphasis will be placed on the present and future requirements of water pollution control during the National Council for Stream Improvement (of the Pulp, Paper and Paperboard Industries), Inc., meetings, which will be held at the Waldorf-Astoria, N. Y., February 20-23. Eight separate sessions have been scheduled.

The sessions include the Annual Meeting of the board of governors on Monday, February 20, and the Annual Meeting of members on Wednesday, February 22. At the Members' Meeting, following a brief business meeting, a technical session will be held dealing with various aspects of water supply, water pollution control, and air pollution. George E. Dyke, chairman of the board of governors of the National Council for Stream Improvement, will preside during the board of governors' meeting and during the business session of the Members' Meeting.

Two papers on waste treatment activities by individual paper mills will be presented. George M. Griffith, of West Virginia Pulp & Paper Co., will describe the new activated sludge plant at the company's Luke, Md., mill. This is an installation treating both industrial and municipal sewage and is the first such type of joint treatment plant in the paper industry. The other paper will deal with the design and construction of the high degree effluent treatment works at the new Augusta, Ga., mill of Continental Can Co., Inc. This paper will be presented by C. S. Huestis, general manager of Bleached Board Production for the company.

In some areas air pollution is of even greater concern at present than stream pollution, and paper industry research in this field is being carried out at several universities. Donald F. Adams will give a paper on the "Sampling and Identification of Waste Gases From Kraft Pulp Mills." Mr. Adams is director of the National Council's research program at Washington State University.

WPMA Celebrates Hundredth Anniversary

The Writing Paper Manufacturers Ass'n., the first trade association organized in this country, is celebrating the 100th Anniversary of its founding. It was founded in Pittsfield, Mass., on February 13, 1861. The Centennial will be a high spot during the 84th Annual Paper Week of the American Paper and Pulp Ass'n., of which WPMA is a member.

WPMA is the oldest national trade association of any kind in the United States. Its nearest rivals for the title are the U. S. Brewers Ass'n. and The American Bureau of Shipping, both founded in 1862.

Of the original membership of 21 companies which founded WPMA in 1861, four are still in operation and are still members of the association.

They are Crane & Co., Inc., Dalton, Mass.; Hurlbut Paper Co., South Lee, Mass.; Parsons Paper Co., Holyoke, Mass.; and Southworth Co., West Springfield, Mass.

WPMA currently has 82 members, including most of the largest companies in the paper industry.

The current president of the association is Arthur E. Crane, vice president of Crane & Co., itself one of the oldest companies in the business.

The executive secretary of WPMA is M. C. Dobrow, who has served with the association for 46 years. He assumed his present post in 1938.

PAPER PEOPLE

R. C. Dressler

R. E. Driessen

Thilmany Advances Mill Personnel

P. H. West

R. E. Driessen and P. H. West have been named production managers of mills Number 1 and 2, respectively, of Thilmany Pulp & Paper Co., Kaukauna, Wis.

R. C. Dressler, a division manager in the paper mill, has been promoted to pulp mill superintendent, succeeding Mr. West. George Paschen, formerly a shift supervisor, has been named to succeed Mr. Dressler as manager of paper mill Division B-2, comprising paper machines Numbers 6, 7, 8, 10.

Mr. West's responsibilities include pulp and paper manufacture, supercalendering and bag conversion. These facilities are concentrated at the east end of the island on which Thilmany is located, and comprise mill Number 2.

Mr. West has been pulp mill superintendent at Thilmany since 1941, four years after he joined the company as pulp mill control engineer. In 1958 he took on additional duties as superintendent of converting operations at mill Number 2.

Mr. Driessen's responsibilities as production manager of mill Number 1 involve converting operations, which include various treatments with asphalt, wax and polyethylene, as well as decorating and finishing. Mill Number 1 is located at the west end of Thilmany island.

Olin Mathieson Paper Div. Promotes Rowland

E. C. Rowland has been appointed administrative assistant to M. H. Collet, vice president and manager of the Paper Division, Olin Mathieson Chemical Corp.

Prior to his appointment, Mr. Rowland served for two years as market analyst in the market development department.

Sandwell Appoints Locke V-P, Asian Operations

Sandwell International, Ltd., of Vancouver, has announced the appointment of C. W. E. Locke as vice president in charge of the company's Asian operations, including the Middle East, South Asia and the Far East. Mr. Locke has recently returned from Europe to take up this new appointment, and will be permanently based at the company's Vancouver head office.

A graduate of the University of British Columbia, Mr. Locke joined the Sandwell organization in 1957. As resident manager, he directed construction of the Khulna newsprint mill at Khulna, East Pakistan. Upon completion of the project, Mr. Locke headed up the Sandwell management group which operated the mill for the Pakistan Industrial Development Corp.

Prior to joining Sandwell, Mr. Locke was for six years general manager of the MacMillan & Bloedel Pulp and Paper Division in Nanaimo, B. C. In addition, he has spent 17 years with Crown Zellerbach Canada, Ltd., including five years as resident manager of this company's Ocean Falls operation.

Inst. of Paper Chemistry Appoints Three

Three appointments to the staff of the engineering and technology section of The Institute of Paper Chemistry in Appleton, Wis. were made recently. Appointed were Donald Brown, Lloyd White, and Bruce D. Andrews.

Mr. Brown will work with engineering studies on atmospheric pollution abatement and do laboratory investigations in bleaching. Messers Andrews and White will work in the field of fluid mechanics, specifically on flow resistance of fiber beds and determination of filtration resistance.

Mr. Brown has a B.S. degree in chemical engineering from the University of Maine and 15 years of industrial experience including production of seamless specialties at U. S. Steel, plant metallurgist at ALCOA's St. Lawrence plant, and technical assistant superintendent for Penobscot Chemical Fibre Co. at Great Works, Me.

Mr. Andrews was on The Institute of Paper Chemistry Staff from 1954 to 1959, and rejoined it from the Manhattan Rubber Manufacturing Co. of Neenah, Wis. He has a B.S. degree in chemical engineering from the State University of Iowa, 1953.

Mr. White has a B.S. degree in chemical engineering from the University of Minnesota and received his M.S. degree from Columbia University in September of 1960.

C. L. Dostal

Fred Herbolzheimer, Jr.

M. L. Downs

G. E. McCorison

Officers Elected at Thilmany Pulp & Paper

G. E. McCorison, former president of Thilmany Pulp & Paper Co., Kaukauna, Wis., was elected chairman of the board and chief executive officer of the company at its annual meeting February 9.

E. H. Jennings, former board chairman, tendered his resignation at the meeting, after 44 years with the firm. Mr. Jennings remains a director of the company and a member of the executive committee.

C. L. Dostal, previously vice president for manufacturing, was elected president succeeding Mr. McCorison. In addition, Fred Herbolzheimer, Jr., was designated vice president for manufacturing, and M. L. Downs was named vice president and technical director.

Mr. McCorison, who has been with Thilmany for 25 years, had served as sales manager and sales vice president before being elected president of the company in 1958.

Thilmany's new president, C. L. Dostal, has been with the company since 1946, following World War II service as a supply and disbursing officer. He was general sales manager before being transferred to the manufacturing division in 1955, and was elected vice president for manufacturing in 1957.

Mr. Herbolzheimer joined Thilmany in 1957 as production services manager, and shortly thereafter assumed the duties of production manager. He is a graduate of the pulp and paper course of the University of Maine.

Dr. Downs, a graduate of Penn State and the Institute of Paper Chemistry, has been with Thilmany for 24 years. He was named technical director in 1944.

Other officers of the company were re-elected. They are: H. O. Peters, vice president for sales; J. T. Thomas, vice president for marketing; E. R. Sutherland, secretary and treasurer; and W. W. Owens, assistant secretary.

Arthur M. Schmalz, a former vice president of the company and an employee since 1905, announced his retirement February 1, prior to the annual meeting.

Johnston Joins Standard Paper as V-P

Standard Paper Manufacturing Co., Richmond, Va., announces the election of George S. Johnston, Jr., to the post of vice president and assistant to the president. Mr. Johnston assumed his new duties February 1.

Mr. Johnston comes to Standard with 27 years of pulp and paper experience. His career in fine papers began in 1933 at the Champion Paper and Fibre Co. in Hamilton, Ohio. He was later appointed assistant mill manager of the Hamilton Division.

Subsequently, he was associated with Continental Can Co., and immediately prior to his coming to Standard, Mr. Johnston was on the management staff of the Latin American Paper Division of W. R. Grace & Co. and situated in Havana, Cuba.

Beckett Elects Tillman a Vice President

William Beckett, president of The Beckett Paper Co., Hamilton, Ohio, announces the election of Bert J. Tillman as a vice president.

Associated with Beckett since 1938. Mr. Tillman has served as sales manager for the past seven years.

P. L. Gilmont

Gilmont to Head Calcasieu Technical Staff

Calcasieu Paper Co. has announced the appointment of Paul L. Gilmont to head its technical staff as technical director.

A native of Brookline, Mass., Mr. Gilmont received both his B.S. and Ph.D. degrees from the Massachusetts Institute of Technology in Cambridge, Mass. He entered the pulp and paper industry with Rayonier, was head of pulp and paper research at the Crossett Co., and

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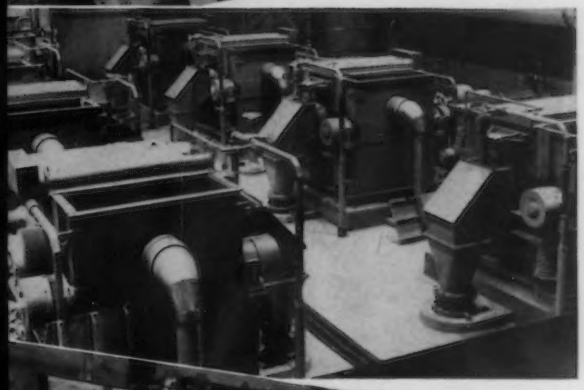
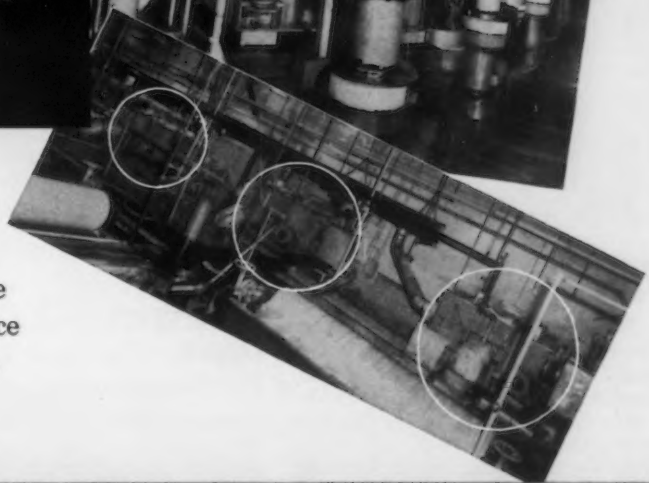
BIRD VIBROTOR SCREENS

that are relied upon throughout the industry whenever there is need for *slotted plate screening* of *large volumes of stock* at *high consistencies*





Write for the latest Bulletin on the Vibrotor Screen and its performance on unbleached and bleached pulps and deink stocks.

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Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

was supervisor of pulp and paper research for Olin Mathieson Chemical Corp. in West Monroe, La.

Formerly a kraft wrapping paper mill, Calcasieu, along with its modernization and expansion of plant facilities, has been engaged in diversifying its production to include many of the so-called specification grades of kraft for sale to the market as well as to its converting affiliate, Southern Maid Paper Co.

Robert Brown

A.N.D. Mill Manager Retires After 50 Years

Robert Brown, mill manager with the Anglo-Newfoundland Development Co., Ltd., Grand Falls, Newfoundland, completed on February 6, 50 years service with the company. He started with the company on February 6, 1911, as a junior electrician and continued in the electrical department until May 1957 when he was promoted to the position of general superintendent mill services. Previous to this he had served in the capacity of assistant electrical superintendent and later as superintendent of this department. In May 1959 he was promoted to the position of mill manager which position he now holds.

MacMillan, Bloedel & Powell River V-P Resigns

John E. Leirsch has resigned as vice president in charge of pulp and paper production for MacMillan, Bloedel & Powell River, Ltd.

Mr. Liersch was executive vice president of the Powell River Co. when the two big forest industry companies merged one year ago.

At the same time J. V. Clyne, board chairman, announced that Ralph M. Shaw, formerly executive vice president of the merged companies had been named senior executive vice president.

PJT NEWS OF CONVERTERS

Western Kraft Plans New Bag Plant

The Western Kraft Corp. has formed a bag division for the manufacture and sale of kraft grocery and carry bags, and a new plant will be built to house this division. Plans for a 38,000-square-foot plant are being prepared by the company's engineering department in Albany.

Site of the new plant is adjacent to the company's Western Corrugated Division container plant at Beaverton. Initial cost of the plant and equipment is estimated at $400,000.

Initially the new division will manufacture and sell kraft grocery and carry bags. This is the first venture by the Western Kraft Corp. into the kraft bag field. It is anticipated that the plant will be producing on a one-shift basis by fall.

Thomas Goen, Western Corrugated plant superintendent, will supervise production at the new bag plant. Thomas B. Parker, formerly assistant sales manager of Western Corrugated at Beaverton, has been promoted to sales manager of the bag plant.

Coincident with the expansion John R. Bently has been promoted to assistant general manager of Western Corrugated, Beaverton, in charge of corrugated sales and production.

One-Time Carbon Paper Ass'n. Meets in New York

A. M. Bridell, president of the American Carbon Paper Corp., Chicago, Ill., was elected president of The One-Time Carbon Paper Manufacturers Ass'n., at the group's seventh Annual Meeting held on January 17, at the Hotel Roosevelt, New York.

Sam Hundley of the Interchemical Corp., Cincinnati, Ohio, was chosen vice president of the association.

Philip O. Deitsch was re-elected as the association's managing director and William V. Driscoll was designated as the group's administrative officer. Mr. Deitsch has been managing director of the association since it was organized in 1955 and will thus begin his seventh year of service to the One-Time Carbon Paper industry.

Milprint Fills New Vice President Post

Promotion of Adolph Miller to the new position of vice president for research and development of Milprint, Inc., has been announced. Mr. Miller will be responsible for directing the basic research program at Milwaukee and all developmental programs at the four plants nationally of the flexible packaging manufacturer.

O-I Appoints Production Manager at West Monroe

Leon H. Garfield has been appointed production manager for the carton operations of the Packaging

L. H. Garfield

Division of Olin Mathieson Chemical Corp.

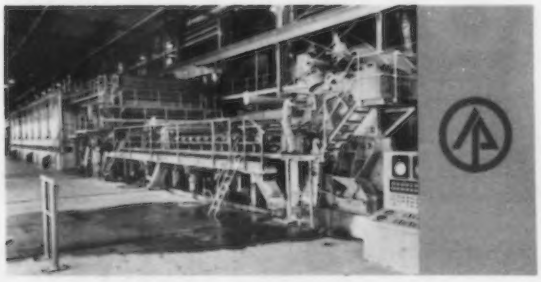
Mr. Garfield has been active for the past 14 years in carton production management activities. He has had extensive experience in the three major types of carton printing—lithography, letterpress, and rotogravure. All three of these printing processes are available from Olin.

His office is at Olin's new carton plant in West Monroe, La. This plant is equipped to manufacture a full range of cartons from all types of carton board.

Heavy-Duty Pneumatic Reel, No. 3 Machine, International Paper Co., Southern Kraft Division, Pine Bluff, Arkansas

O. R. CHRISTENSEN

International Paper Company



Southern Kraft Division, Pine Bluff, Arkansas

Pine Bluff's new 209′ Fourdrinier paper machine is equipped to manufacture newsprint and directory paper to meet the expanding demand for these grades in the South. This is the third Beloit machine in operation at Pine Bluff. The first two machines began operation in mid-1958, producing newsprint and bleached kraft paperboard. For further views of the new machine, please turn the page.

. . . some views of the new 209″ Beloit Fourdrinier paper machine at Pine Bluff

(a) Beloit patented air-cushioned controlled-flow inlet showing a portion of the cantilever-type Fourdrinier. Design speed of this machine is 2000 fpm. **(b)** Twin open side Beloit calender stacks. The stacks are equipped with patented nip relief arrangement. **(c)** International Paper Company's Pine Bluff Mill. The new machine room is situated at left foreground. **(d)** Beloit Eastern Corporation 6000 fpm Model L Winder and heavy-duty unwind stand. **(e)** Twinver press arrangement; other press features include automatic suction pick-up and third suction press.

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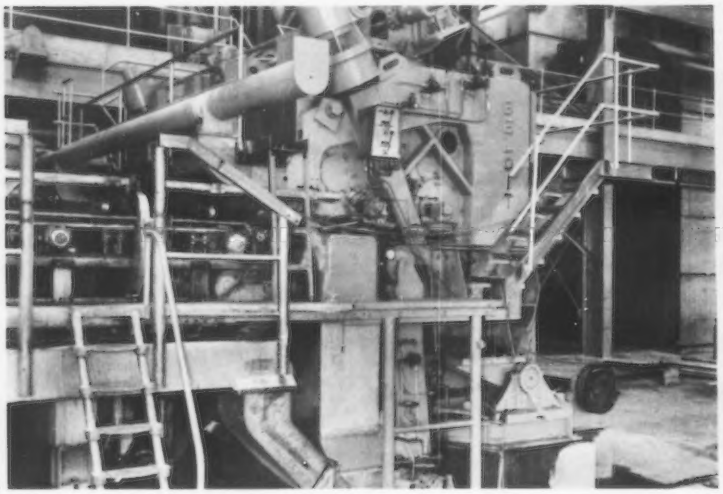

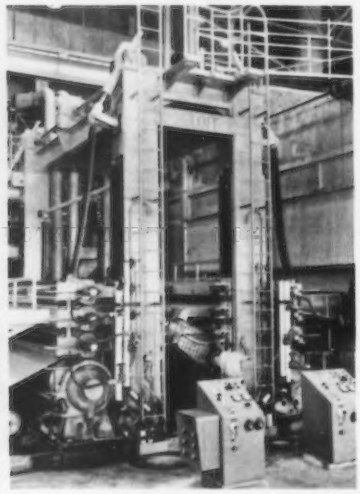

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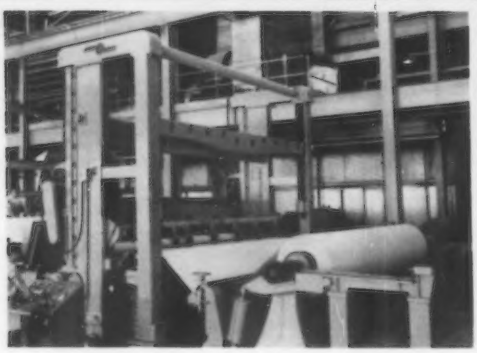

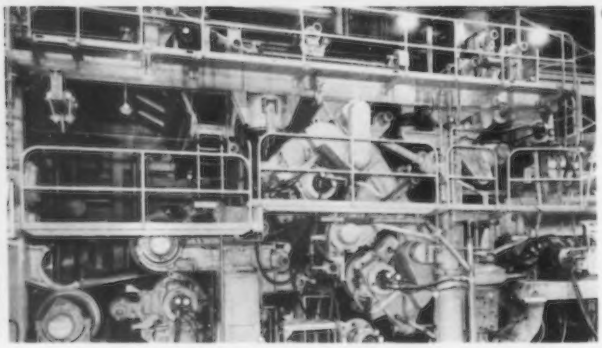

e

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BELOIT

PAPER MACHINERY

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ST. REGIS PAPER CO.'s Roy K. Ferguson safety award is presented by Mr. Ferguson, chairman of the board, to William W. Stonesifer of the container division's Mt. Wolf, Pa., plant. St. Regis president, William R. Adams, is at left. Mr. Stonesifer, a printer-slotter operator, with 12 years' service with the company, was the winner in a drawing held among all the employes at the plant to determine who would accept the award. The Ferguson award, a reproduction in sterling silver of an old English trophy, is presented annually to the St. Regis location with the best three-year cumulative safety record.

Lane Paper Completes Long-Range Program

The Lane Paper Corp. announces the completion of its long range expansion and reorganization program. Under the direction of Harry Rimberg, general manager, this program included reorganization of administrative and sales personnel, consolidation of paper mill lines, relocation of offices and warehousing facilities, etc.

Page to Manage Copco Cleveland Division

J. F. Page, Jr., assistant manager of Central Ohio Paper Co., has been named manager of the Cleveland Division. He succeeds William Jones, who retired after 56 years with Copco.

Con. Can Makes Container Div. Appointments

Three personnel appointments in the Corrugated Container Division of Continental Can Co. have been announced.

J. R. Bevers has assumed the responsibility of sales manager for corrugated displays, with headquarters in New York City. Mr. Bevers was formerly with the James H. Matthews Co.

F. E. Goodrich has become sales manager for new products development and will be located in Chicago. Mr. Goodrich came to Continental at the time of the company's merger with the Fort Wayne Corrugated Box Co.

C. H. Root is now director of corrugated box research and development in Van Wert, Ohio.

Jones Joins Gilman as Multiwall Bag Sales Mgr.

Gilman Paper Co. has announced that Tom L. Jones has been appointed sales manager in charge of multiwall bag sales, with headquarters in New York. Mr. Jones formerly was vice president and director of multiwall sales for Arkell & Smiths.

OBITUARIES

Paul S. Leffholm, chairman of the board and co-founder in 1923 of Wilcox-Mosher-Leffholm Co., Minneapolis, died January 29. He was elected president of the firm in 1951, and in 1959, after 50 years in the paper business, sold his interest in the company to a group of his company employees, at which time he was named board chairman.

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BUILT FOR PRECISE TESTING

Cadytest Instruments are designed for accuracy in determining or comparing thicknesses, basis weights, or bursting strengths. They are available in stock models, or specials for specific tasks.

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Manufacturers
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Cady Burst Tester with Automatic Uniform Cycle

Why have so many installations of chemical recovery units (in the past five years) been equipped with **Bailey instruments and controls?**

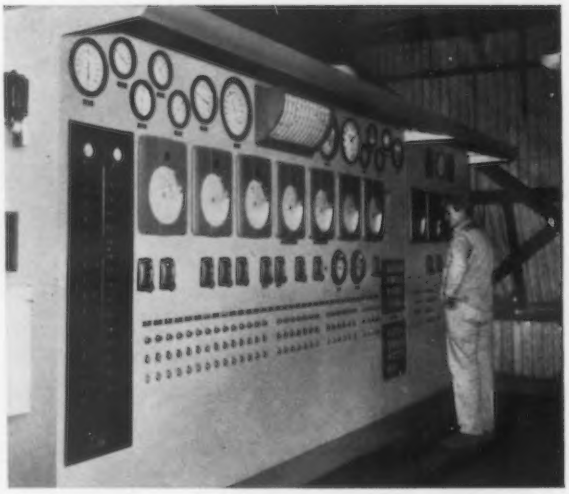
Bailey assures reliable and continuous operation with a control system engineered specifically for the chemical recovery process.

Every Bailey installation gives top performance. It's the reason for Bailey's long and prominent association with chemical recovery . . . and it's why you'll find Bailey instruments controlling virtually every process within many pulp and paper mills.

Bailey starts with sound engineering and economic evaluation of your needs . . . an evaluation based on more than 40 years' experience, kept fresh by a national network of engineers in constant contact with your industry.

Then the selection of the *right* system . . . selection made simple by a complete line of equipment . . . from conventional instruments through sophisticated data processing systems.

That's the Bailey way. Put this logic, capability and performance to work on any process control problem you have. Call on the Bailey District Office or your nearby Resident Engineer. Or, write direct.



In Oregon—maximum economy, minimum maintenance since 1958; Bailey control center for chemical recovery unit at Georgia-Pacific Paper Co., Toledo, Oregon. Evaporator system (right) is also operated from this Bailey center.

P152-1

PULP AND PAPER DIVISION

BAILEY METER COMPANY

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In Canada—Bailey Meter Company Limited, Montreal

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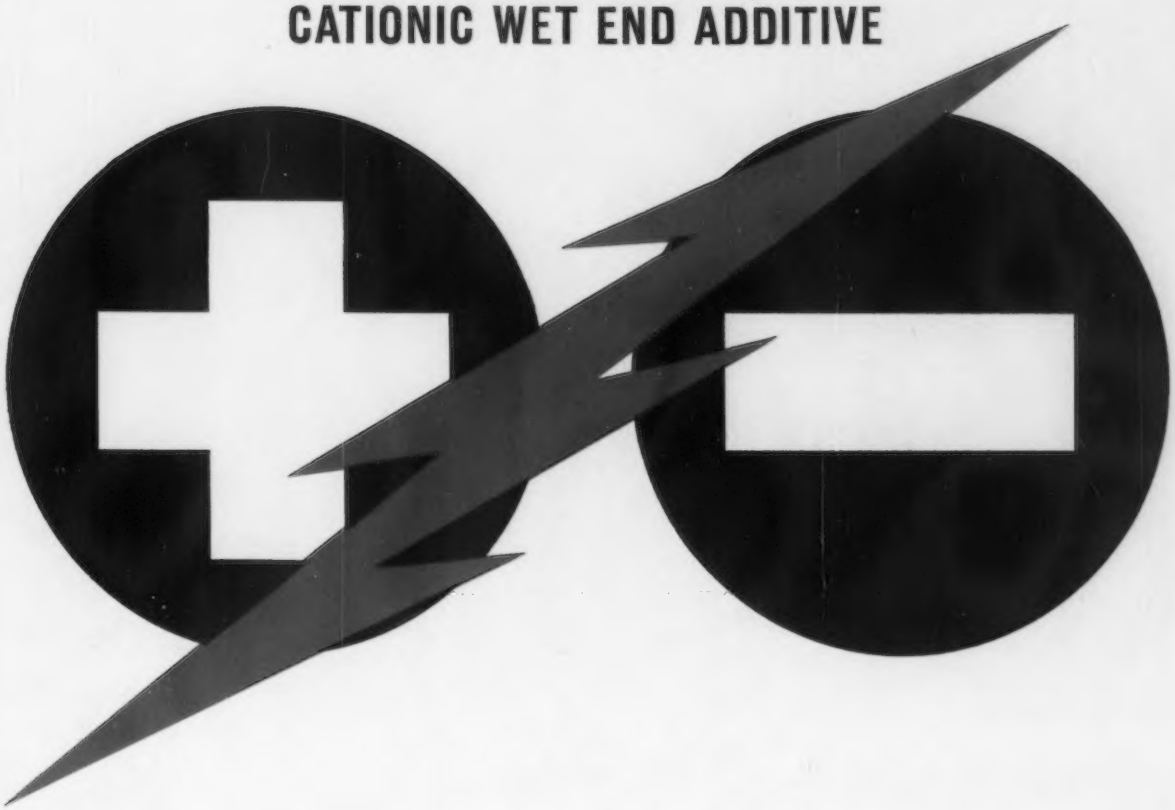
CATO

CATIONIC WET END ADDITIVE



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CATO is unique. A cationic starch. With strong "plus to minus" electrochemical affinity for anionic substances: cellulose fiber, fillers, organic additives and others.

CATO increases strength. Increases pigment and fines retention. Increases ash content without loss of strength. Replaces a multiplicity of additives.

In addition, retention of sizing materials, retention of anionic synthetic polymers, faster drainage and other benefits are often realized.

CATO is highly effective with sulfite, soda and groundwood pulp. Also with Kraft, semi-chemical and reclaimed stocks. It is 100% retained in the sheet. Only small additions are used because of its strong functional activity.

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*Idea submitted by Donald F. Somes, Simpson Lee Paper Co., Lowell, Washington
Photo: Courtesy Convair Div. General Dynamics Corporation

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are 'best in the long run.'
All Hamilton Felts are 'water-conditioned'
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longer . . . with fewer stops . . . turning out
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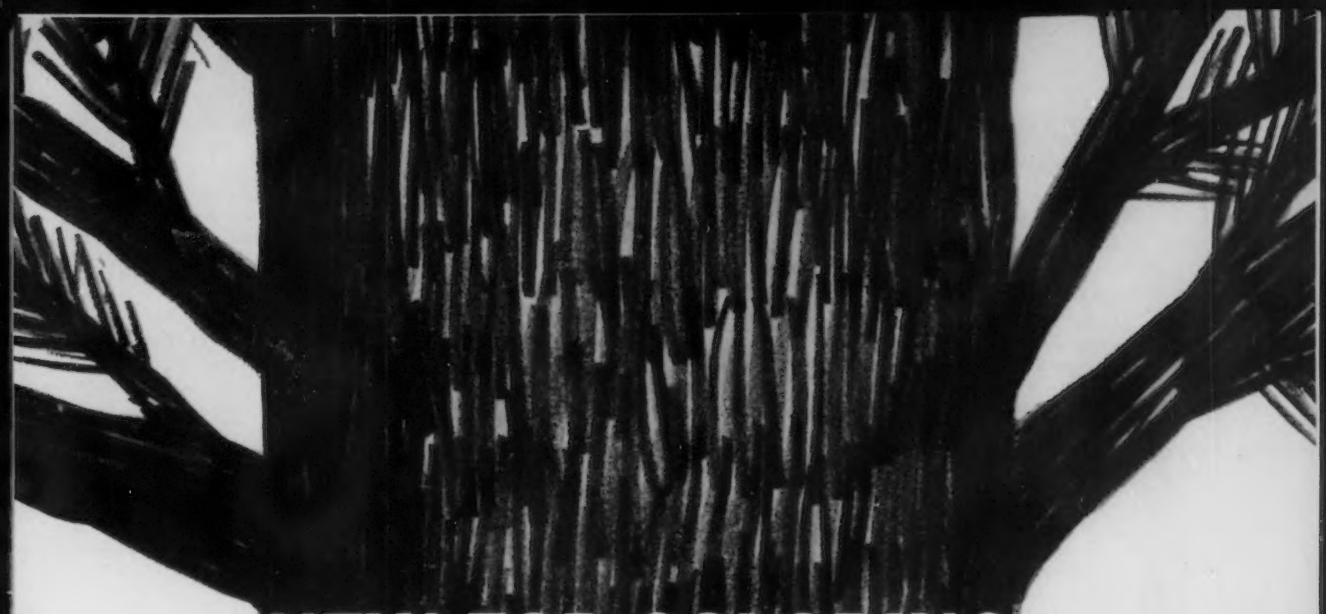
SHULER & BENNINGHOFEN, HAMILTON, OHIO



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Sized papers gain a premium look at budget prices

Dye lively canary and green shades with economy and satisfaction.

Reduce costs to new lows for bright yellows on commercial grades of bond, register, tissues, and wrapping papers. See the excellent color value and dyeing properties—light fastness comparable to other Stilbene Yellow types—nondusting.

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STILBENE YELLOW 3 GA CONC CF	slightly greener than Yellow TP Conc
STILBENE YELLOW 5 GXA	greener, brighter than Yellow 3 GA Conc CF
STILBENE YELLOW 6 GP	greener, brighter than Yellow 5 GXA
STILBENE YELLOW 8 GP	greener, brighter than Yellow 6 GP
DIRECT YELLOW CPA CONC	alkali-fast Stilbene types:
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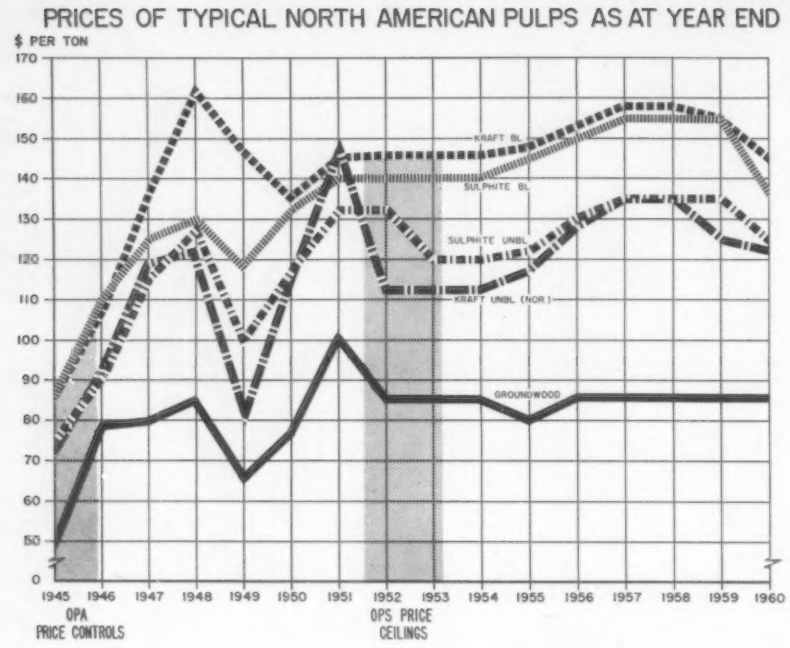
STILBENE YELLOW 10 GP MANUFACTURED BY GENERAL ANILINE & FILM CORPORATION IS SOLD UNDER THE UNITED STATES AND CANADA LISTED TRADE NAME. INDIVIDUAL YELLOWS 10 GP, BY DISTRIBUTORS AND USERS THE WORLD.



THE ACCOMPANYING GRAPH presents a simplified picture of the prices of N.A. pulps in the United States market for the period covered.

Market Pulp Prices 1945-1960

Their Past, Present and Outlook

Paper pulp prices now stand at the same level or below those prevailing in 1951. How did this strange economic anomaly occur? What of the future? This special report endeavors to present an authoritative and comprehensive picture. Criticism and comments will be appreciated.

John C. W. Evans,
Editor,
Paper Trade Journal

The sudden and large drop of market paper pulp prices late in 1960 seemed to make it advisable to prepare for our readers this study of pulp prices. Although the immediate causes of this fall were readily apparent and the price cut was not entirely unexpected by some leaders in the field, a complete understanding of the picture and possible future direction of prices requires a review of events in this field back to 1945.

This we present here. A study undertaken by this magazine early last summer (and summarized in our September 5 issue) of the market pulp situation in general, failed to reveal during detailed personnel interviews with a number of major pulp sales executives, any expression of opinion that there might be a cut in pulp prices. No one was optimistic about the pulp price picture, although some hopes were expressed that increases might be possible during 1961. It is now evident that had this study been made later in the summer, as will be explained later, some hints of price cuts might have been indicated.

Immediate Postwar

Market pulp was put under Federal Price Controls about half-way through World War II, shortly after the entry of the United States and so remained until late in 1946. The final OPA approved prices are shown in the accompanying table.

The wartime history of domestic bleached sulphite pulp is typical of all grades. The prices was frozen at $76 in May 1942. An advance of $10 was allowed in March 1944, one of $8 in May 1946, and one of $9.50 in September of that year. With the removal of controls North American producers advanced their prices $5 to $10, with further increases totaling $10 during 1947 so that the price was then $120-125.

Scandinavian producers began to offer pulp in the United States market in July 1945, and at OPA prices. With the removal of price controls on pulp in November 1946, North American pulp producers increased their prices moderately and gradually but many Scandinavian producers

were more precipitate, and prices of some of their grades in the U.S. market shot up as much as $50 a ton almost overnight. For comparison, in 1947 when domestic bleached sulphite was $120-125, Scandinavian prices were as high as $185.

"It should be mentioned that the Scandinavian producers had very very lean years during 1940-45 and further that European pulp prices during 1946-48 were $100 to $150 a ton above the U. S. levels. Some American producers were very happy to sell pulp in Europe during this period to make up for the low North American price set by Weyerhaeuser."

Since this occurred at a time when U.S. consumers of pulp were expanding their output of paper and board to meet rapidly expanding postwar demand there was considerable feeling that the European producers were taking undue advantage of them. This feeling was undoubtedly a factor in the subsequent expansion of North American market pulp facilities so that this continent is now self-sufficient and indeed has become a major exporter to other areas. Thus it may be possible to attribute in part, today's over-capacity and price weakness back to the Scandinavian prices in 1946. Pulp demand and prices both continued to rise through 1947.

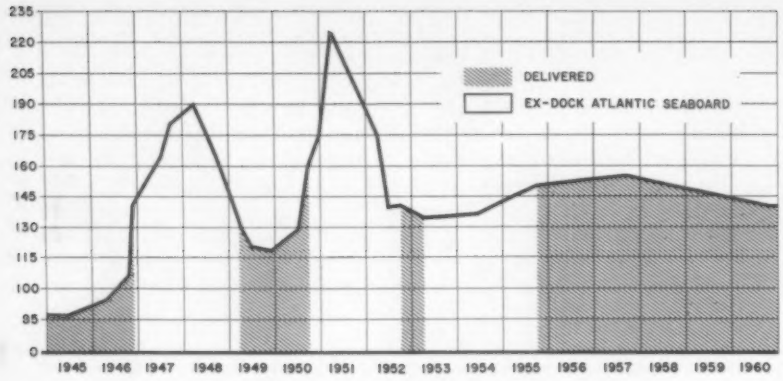
"The rapidly rising price generated an idea or myth of continuing shortage which encouraged inventory buying. This produced the subsequent 'Inventory Cycle'."

This article, as far as the editors know, constitutes the only published survey and discussion of pulp prices covering the period since the end of World War II. We were therefore most concerned for its accuracy as an historical record. When the article was completed copies were submitted to a number of the leading pulp sales agents and pulp producers for criticisms and comments. We are most grateful to the persons who went over the manuscript very carefully, which they did as evidenced by their notes. Where in a few cases it did not seem to be desirable to incorporate their comments in the text, these have been inserted in a different type face.

Paper Pulp Prices in the United States Market 1945-1960

	SULPHITE				KRAFT					SODA	G'W'D.
	Bleached		Unbleached		Bleached		Unbleached				
	U.S.	Europe	U.S.	Europe	U.S. Nor.	Europe	U.S. Nor.	U.S. Sou.	Europe	U.S.	U.S.
1945 (Apr)	86	86	74	74	86	86	73	63½	75-80	76	50
Prices above are ceilings set April 20, 1942 by Office of Price Administration											
1946 (Nov)	107½	107½	94	94	107½	107½	89	76½		93½	64
Prices above are final Office of Price Administration ceilings											
1946 (Dec)	105-115	115-165	85-95	95-133		110-120	90-95	85-89	90-95	105-110	70-80
Prices after Office of Price Administration controls removed Nov. 1946											
1947 (Jan)	115	120-165	105	120-140	125-130	125	95-97	90	89	105-110	75-80
(Oct)	120-125	175-185	115	145-165		175-185	112½-125	90-120	140-145	120-125	75-81
1948 (Spring)	126-135	185-195	125-130	155-157	170-185	185-190	125-135	110-125	147½	130-135	80-85
(Oct)		165		140-143	155-170	165	120-125		127½		
1949 (Jul)	118	118-122	100	100-115	122-126	125-128	94-105	80	94-97	113	60-65
(Dec)	118	118	100	100	118-126	126-128	82½	80	82½	113	65-67½
1950 (Jul)	122-125	128	107	107	122-131	136	105	95-97½	96½	120-122	70
(Dec)	128-135	160	117	138-160	128-141	160	110-120	115	138-160	130	77½
1951 (Jan)	135-145	175	140-145	153	135-200	180	140-155	115	153	140	85-100
(Jul)	140	225	132½	200	145	230	145-150	132½	200		92½-110
Last prices above are Office of Price Stabilization ceilings imposed June 30, 1951											
1952 (Apr)	140	175	132½	155-160	145	180-185	135-140	125	145-150	140	92½-110
(Oct)	140	140	125-132½	115	142-150	142½	100-125	100	100	140	87
1953	140	130-140	120	110-125	142-150	137½-142½	100-125	95-105	100-125	140	82½-87½
Removal of Price Stabilization ceilings in Feb. 1953 did not affect prices											
1954	140	135-140	120	115-122	142-150	140-142½	100-125	100-105	105-110	140	82½-87½
1955 (Jan)	145	142½	120-125	125-130	147-150	142½-147½	110-115	105-110	110-115	142½	75-80
(Oct)	150	150		130		150	115-120	112½-120	115		75-85
1956	150	150	125-130	130	152-155	155	125-130	117½-122½	120-125	142½-145	
1957 (Oct)	155	155	135	135	157-160	157½-162½	135	120	120-125	150	82½-90
No changes to January 1960											
1960 (Jan)	150-155	155	130-135	135	152-157-160	157½-162½	120-130	115-122½	125	150	82½-90
Above are first bleached pulp prices based on brightness											
(Nov 7)	135-140	140	125	125	140-145-150	150	120-125	115-122½	125	130	82½-90

The above table is intended as a guide to reading the text and is not complete with respect to grades nor minor price changes within a year. It is based on "Wood Pulp Statistics, 25th Edition" of the U. S. Pulp Producers Ass'n. and on prices published in Paper Trade Journal. For complete details on prices we refer our readers to the extremely valuable publication of the U. S. Pulp Producers Ass'n.



PRICE OF EUROPEAN BLEACHED SULPHITE IN U. S. MARKET

Nineteen forty-eight marked the beginning of a period of adjustment. The consuming mills entered 1948 with substantial inventories. This, with both Canadian and U.S. production of market pulps increasing, resulted in resistance to the higher priced European pulps. With the removal of the Swedish "export tax" this resulted in a price cut of $15-20 a ton on Scandinavian pulps in the U.S. market, but still well above North American prices. Next a decline in U.S. production of paper and board with consequent drop in demand for market pulp brought about price cuts on North American grades of $10-15 per ton early in 1949. A few months later the Scandinavian producers followed suit with prices now $10-15 a ton above North American producers. Currency devaluation and other adjustments resulted in Scandinavian prices for the third quarter of 1949 approximating that of N.A. producers for the first time since 1946.

Unbleached chemical pulps underwent drastic downward movement during 1949. Between March and December, unbleached northern kraft dropped from $115-125 to $82.50 at the same time unbleached sulphite went down from $118-130 to $100. Scandinavian producers followed suit and matched the prices of the North American producers for unbleached chemical pulp.

Business Upswing

A business upswing began in the fall of 1949 with consequent increasing use in paper and board production. This gained momentum with paper and board mills running near capacity by mid-1950. By July, domestic pulp prices (excepting unbleached kraft) had risen $4 to $7 a ton and Scandinavian by about $10. Domestic unbleached kraft rebounded from its low of $82.50 to $105 at mid year. This was ahead of Scandinavian prices on this grade for several months. Therefore, at the beginning of the Korean war (June 1951), all segments of the industry were enjoying a boom.

Korean War and Pulp Shortage

As the Korean war got under way requirements of the U.S. government for paper, board and dissolving pulps began to result in a shortage of market pulp which became worldwide. To protect its need the government instituted distribution controls on pulp. In the fall of 1950 most domestic grades of chemical pulp were raised $10 a ton excepting unbleached kraft!) up $15. Increases in the same period for Scandinavian pulps ranged from $24 to $63.50 depending on grades. By January 1951, domestic pulp prices had begun to go wild and Scandinavian prices sky-high. There were such variations in both contract and spot prices for most grades that it is difficult to quote a representative figure. Through the spring conditions became worse until the imposition of office of Price Stabilization ceiling. Some extreme examples of the regular (not spot tonnage) prices being paid just before the OPS action were: domestic northern unbleached kraft $155; European unbleached kraft $250; European bleached sulphite $225; and domestic bleached sulphite $145. Much higher prices were frequently paid for spot tonnage. As an example of the chaotic nature of the market published records of the period show the same or lower prices for domestic bleached sulphite as for the same grade unbleached. This was chiefly due to the fact that most bleached sulphite was under contract, unbleached was not.

OPS Ceilings Imposed

The Office of Price Stabilization on June 30, 1951, set maximum prices at which domestic market pulp could be sold and at the same time imposed ceilings on the prices which could be paid for imported pulp. The domestic prices were fixed at levels close to those prevailing in January of that year, while the import prices were in most cases fixed $75 to $85 higher. The OPS regulation which fixed the prices for imported pulps got those from the Scandinavian countries at an "on dock" basis.

Need for the belated OPS ceilings greatly lessened shortly after they were imposed, although they remained in affect until February 12, 1953.

The OPS ceilings had the effect of diverting some Scandinavian pulp to other world areas where phenomenal prices were obtained. However, with a slight lessening in demand U.S. and Canadian producers were able to take care of the market. Domestic pulp prices remained virtually unchanged through 1952 with the exception of unbleached kraft which declined to a more realistic level. Beginning with the second quarter of 1952 Scandinavian prices gradually dropped until by the end of the year they were equal or close to domestic prices. Removal of OPS ceilings in February 1953 had no effect on the pulp market.

It might be appropriate to mention here that the two periods of high prices for Scandinavian pulps, immediate post war and at the time of the Korean incident, had a strong effect on Canadian pulp quality. Producers of market pulp in Canada decided to compete fully with Scandinavian pulps on a top quality basis with the result that their mills were extensively modernized and improved with most bleached pulp mills adding one or more chlorine dioxide stages.

Post Korea to Fall of '60

The general pattern of North American pulp prices from January 1953 to October 1957 was one of a few modest price increases amounting to about $5 per year, with Scandinavian producers remaining competitive.

Pulp prices then (October 1957) remained (officially) unchanged through the serious recession of 1958 and the boom of 1959 and early 1960. However, additional pressures building up on pulp prices during the summer coupled with a slight drop in demand resulted in the announcement in November 1960 of drastic

cuts for bleached pulps by a major producer, with all domestic and European pulps soon falling in line.

"That is those who were not already selling at this level or below."

The foregoing provides a vast over-simplification of the pulp price picture during 1958, 1959, and 1960. During the recession of 1958 several new North American producers of market pulp came into production offering substantial tonnages of off-grade (?) or "first run" pulp at reduced prices. In general considerable domestic pulp was offered as off-grade as a means of cutting prices and getting orders. Extra offerings of paper pulp from dissolving pulp mills added to the price weakness. The business upwing in the fall of 1959 served to steady prices somewhat but off-grade and spot market bargains were still available. Just as the domestic price situation began to steady there appeared a new complication. The recession of 1958 in Europe had produced large inventories of pulp at the Scandinavian mills and with a prevailing price in Great Britain and on the Continent of approximately $20 a ton below that in the U.S. market, the European producers therefore began moving large volumes of pulp into this country early in 1959. As will be discussed later another factor was the strong movement of N.A. pulp into Europe. Most of it was shipped on a consignment basis and remained on the docks until it was sold, often at prices as low as $30 per ton below domestic contract prices. The result was that although United States paper and board mills were running near capacity the North American market pulp mills were not. Many domestic producers were thus hard hit in a boom period but managed to resist the temptation to match the Scandinavian prices. The rise in the European economy and the domestic price adjustments for brightness in January 1960 (discussed below) resulted in the return of Scandinavian shipments and prices to this country to a more normal level.

Brightness Price Adjustment

Something new was added to pulp pricing in January 1960 when a major U.S. producer began pricing its bleached pulps based on brightness. 90+ GE brightness (top) bleached kraft and sulphite pulps were now offered at the previous prevailing prices while pulps of lower brightness were offered at discounts of $5 to $8 a ton. This was to a certain extent a price cut and pinched those mills not equipped to produce top brightness pulps. Prices of Scandinavian grades were not affected by this brightness pricing because in many cases they were already at the top brightness levels. Although intended to help stabilize prices and put them on a more logical basis a number of market pulp producers were disturbed at this move and spot and special price offerings increased as general business began to slacken.

The Boom Falls

As summer wore in to fall the situation worsened and offerings of underpriced pulp from dissolving pulp mills contributed to the pressure. The tendency was more and more for consuming mills to reduce their contract purchases and rely on the spot market. Prices for the fourth quarter however were announced as unchanged except for bleached soda, off $15 from $150.

Weyerhaeuser Co., largest producer of market paper pulp on the continent, which had also originated brightness pricing in January 1960 took drastic action on November 7. Aside from the actual price drop the action was unprecedented in recent years in that the price was changed in mid quarter. The Weyerhaeuser announcement was for $15 cuts on the several brightness grades of bleached sulphites, $10 from top brightness bleached kraft and $12 from the other grades of this pulp. Other North American producers who were not already selling at or below the new levels were forced into line. Then drops of $10 were announced for unbleached sulphite and semi-bleached kraft. Another $5 was taken from soda prices which had already dropped $15 in October. Only unbleached kraft grades ended up unaffected. In order to sell in the U.S. market with so much overcapacity available on this continent Scandinavian producers also met the new price levels.

"While some downward adjustment in official prices was probably justified, the drastic and sudden nature of the cuts is questionable and showed a complete disregard of the giant for the smaller fellow."

European Picture

No consideration of pulp prices in the United States would be complete without a discussion of the European pulp market. Exports of pulp to Europe by N.A. producers have been a big factor in the relative stability of the domestic market for the past five years. Exports to Europe in the past decade have increased 600 per cent and in 1960 they were about 75 per cent higher than in 1959. This entrance by N.A. into a traditional Scandinavian market has not been without repercussions here. Many N.A. producers are said to have sought to enter or establish themselves in Europe and Great Britain by cutting prices. Needless to say this action did not endear them to their Nordic competitors. It appears that this action originated among newcomers to the European market place.

"Some of us believe that the actions of some of the Scandinavians in shipping large quantities of pulp into the United States during 1959 and offering this at reduced prices was in part retaliation for similar behavior by North American producers earlier in the European market."

The recent price cuts here have put European prices on about the same footing as in this country virtually eliminating any premium advantage for the Scandinavian producers to sell in this country. The reductions here may preclude prospective price increases by the Scandinavians to European consumers in 1961 except on the unbleached grades.

The rapidly expanding European paper economy, the Common Market and the European Free Trade Area will have a great effect on the pulp market there. That consumption of market pulp will greatly increase is undoubted but who will get the additional volume is more difficult to determine. There is not only the matter of the effect of removing controls and duties on pulp where they exist but also the inter-related effect of removal of these from paper and board.

British paper and board producers for example are concerned that after tariff cuts Scandinavian paper and board will flood the U.K. market. The British would presumably seek cuts in pulp prices by the Scandinavian pulp producers to help them meet this competition. The situation is further complicated by the fact that the same Scandinavian country may be shipping both pulp paper and board into the British markets.

In the meantime Sweden and Finland are all enlarging their pulp,

paper and board facilities in major expansion programs. At the end of 1962 Finland's market pulp capacity will be up 40 per cent over 1959, while the market pulp capacity for Sweden at the end of 1964 will be about 30 per cent over 1960.

On the Dock and Delivered

The Office of Price Stabilization regulation which set the import prices for pulp in June 1951 set Norwegian, Swedish and Finnish pulp price at an "on dock" basis. When pulp prices dropped in the second quarter of 1952, the Finns met this by quoting their pulps on a "fully delivered" basis. The Norwegians and Swedes maintained the on dock basis and adjusted their prices. During 1953 Swedish prices were in some cases quoted on a full or partially delivered basis in order to meet competition in certain grades and geographic areas but generally quotations were "on dock." This manipulation of delivery basis to meet competition continued to exist to a varying degree until the first quarter of 1957. Since that time virtually all imported pulps are quoted on a delivered price basis.

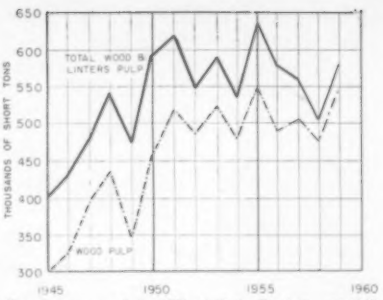
We have discussed the above since it is of importance to anyone trying to study the pattern of imported pulp prices during the fifties.

Capacity and Over-Capacity

It must seem strange to a newcomer to our industry that we do not have any reliable data on market pulp capacity. This is due to two factors: the dissolving pulp mills and the in-and-outers.

The U.S. dissolving pulp mills have a capacity of about 1.5 million tons per annum. Since dissolving mills can readily produce bleached paper pulps it is obvious that these mills turn to the paper industry as an outlet for excess capacity when requirements for their dissolving grades lag. The textiles produced from dissolving pulps have had strong competition from synthetic fibers during the past decade at the same time that dissolving pulp producers overexpanded.

Between 1950 and 1960 U.S. consumption of wood pulp in rayon and acetate manufacture increased about 100,000 tons. Even this small increase represented markets taken from cotton linter pulp rather than in increase in consumption. See accompanying graph. At the same time U.S. capacity to produce dissolving and special alpha wood pulps increased by one million tons, speaking



Based on a graph in "Wood Pulp Statistics 1960."

UNITED STATES CONSUMPTION OF PULP IN PRODUCTION OF RAYON ACETATE

in broad terms. Capacity increased during the decade, from half a million tons a year to a million and a half tons. It should be pointed out that during the same period exports of these grades increased from virtually nothing to about one third of a million tons a year, thus removing some of the pressure.

This 200 per cent increase in U.S. dissolving pulp capacity had a related effect on Canadian producers of dissolving pulp, forcing them to look more to paper pulp markets. In fact, one Canadian mill pulled out of the dissolving pulp field entirely so that the entire output of this large mill has been added to the paper pulp market.

Now nylon is giving rayon extremely strong competition for tire cord. Should nylon achieve a major victory in this market this will throw more capacity into the paper pulp field. As with paper pulp growing exports have been a major factor in the stability of the dissolving pulp market. The problem of North American over-capacity in paper pulp could be seriously aggravated, by any major downward change in the consumption of wood pulp in the manufacture of textiles or tire cord.

The in-and-outers from some points of view present a more serious problem. The in-and-outers are some integrated mills who are basically paper and board producers and who try to sell any pulp they can produce in excess over their own requirements. This will vary from very little to a lot. The "lot" occurring when demand for paper and board is down so that they frequently have excess pulp just when demand for market pulp is down. Some of the more irresponsible then dump this pulp onto the market at reduced prices to help "carry their overhead." The most serious North American problem in the realm of capacity is likely to be the over-capacity in actual market paper pulp mills, particularly in bleached kraft. Some adjustment in bleached kraft has occurred in the South where several market pulp mills are diverting part of their market pulp capacity to paper or paperboard. On the other hand we have now in North America four new market pulp mills under construction at the present time and major expansion programs under way at several others.

It would seem that failing an explosion in demand in the United States or in Europe, we will have over-capacity here with its depressing effect on prices for at least the next several years.

"All right if several means seven to ten"

New Grades

The development of totally new grades and types of pulps in the period since the end of World War II have not been without their effect on pulp prices. By new grades, we are not referring here to the improvements made in the quality and brightness of bleached sulphite and kraft. Southern and Pacific Coast bleached kraft hardwood pulps have made their appearance on the market as strong competitors to bleached soda pulp as well as bleached sulphite.

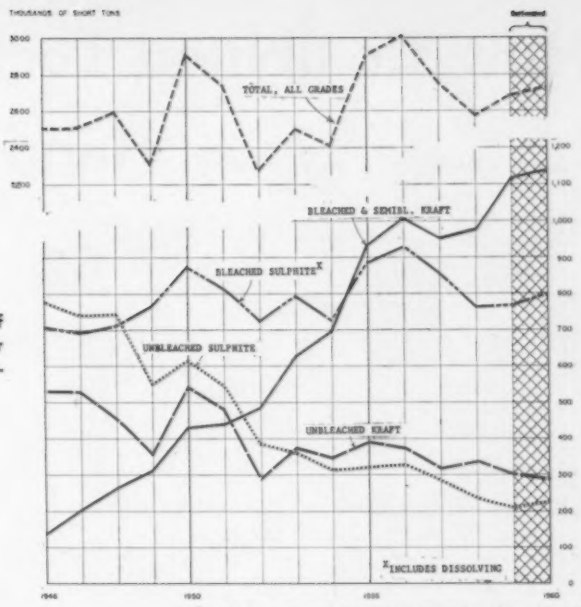
Semi-bleached kraft market pulp, particularly imports, has achieved prominence and found a place, chiefly at the expense of the rapidly declining market for unbleached sulphite. Although semi-chemical pulps have not been able to make a place on the market, because of technological problems in drying, they too have had their effect. A number of fine and printing paper mills have installed facilities to produce bleached semi-chemical pulps, thus displacing existing or expanding chemical pulp purchases. Although it does not belong here as a totally new pulp, we will mention that the post war period has seen the emergence of the southern United States as an important factor in the bleached kraft (softwood) market.

Canada

Canadian exports of wood pulp approximately doubled between 1945 and 1960, from one and a quarter to two and a half millions tons. In 1946, 76 per cent of Canada's pulp exports came to this country, by 1960 this was slightly over 80 per cent. We

have not discussed prices of Canadian pulps in the U.S. market since except under very abnormal circumstances, e.g., the height of the Korean War pulp price scramble, these prices approximate those of domestic producers. The reasons for this is two-fold; first the United States constitutes a very large market and the Canadians wish to keep it, and secondly, many of the Canadian pulp mills are owned by United States companies.

Canadian immediate postwar expansion in market pulp capacity was almost entirely concentrated, as in this country, on bleached kraft pulp. More recently the trend has been to up-grade their bleached kraft and sulphites so as to compete with the top grades from Scandinavia. A third significant trend has been the conversion of unbleached sulphite mills to the production of bleached sulphite, as unbleached sulphite became a "drug on the market."



CONSUMPTION of market pulp in paper and board manufacture.

Modified from a graph in "Wood Pulp Statistics, 1960."

Pulp Price Outlook

The outlook for any change in pulp prices in the near future is slight. Surely the prospects for further cuts is nil, on the other hand it will require a drastic change in the supply-demand situation to permit price rises.

"It should be kept in mind that the law of supply and demand hasn't been repealed yet." (Editors note —yes, but other industries, notably steel, keep it under some control!)

Referring to the accompanying graph it can be seen that the growth trend line for U.S. consumption of market pulps in the past 15 years has been only slowly upwards. So that it will take a long time for U.S. consumption to catch up with present and under-construction North American wood pulp capacity. What about the prospects of disposing of all our excess capacity in world markets? It will require a terrific booming foreign demand (a) to allow us to greatly enlarge our present big exports of pulp and (b) at the same time absorb the really large increases in output now being installed in Scandinavia.

The only consolation for market pulp mills is that the lower U.S. pulp prices are strengthening the position of their customers, the non-integrated paper and board mills. Feelings about this cannot be entirely unmixed since many U.S. pulp producers are also manufacturers of paper and board.

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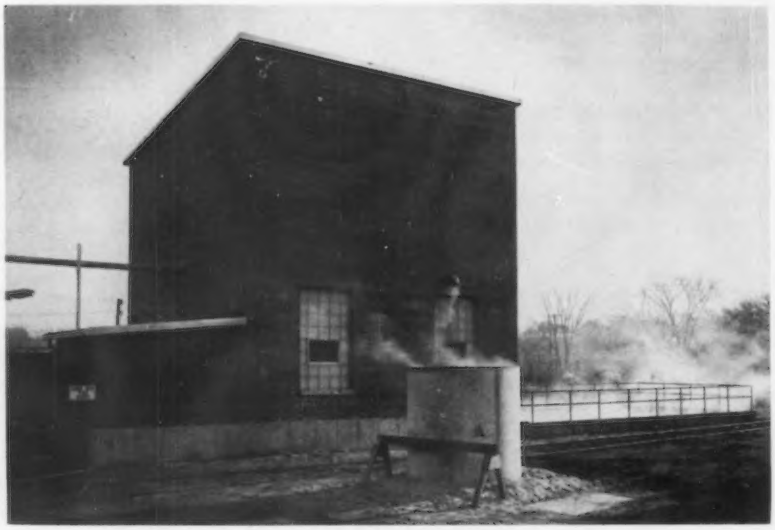
How Combined Locks Paper Handles Deinking Waste

An operating report on this company's method of alleviating a difficult waste disposal problem.

J. F. Whalen,
Technical Director,
Combined Locks Paper Co.

Combined Locks Paper Co. is a groundwood specialty mill located on the Fox River about five miles east of Appleton, Wis. The mill has been going through a modernization program, and an important part of the program was and still is to reduce the pollutional load to the Fox River. The waste from the deinking operation is the major portion of pollution from this mill, and this article covers the work that has been done to handle this waste.

The deinking waste is the effluent from slide washers which contains alkali, detergents, dispersed ink, groundwood fines, and filler clay. The flow rate is approximately 500 g.p.m. and it contains 30 to 40 pounds of filterable solids per thousand gallons and 500-600 p.p.m. of biochemical oxygen demand.



Overall view of plant showing filter building constructed over one end of settling basin.

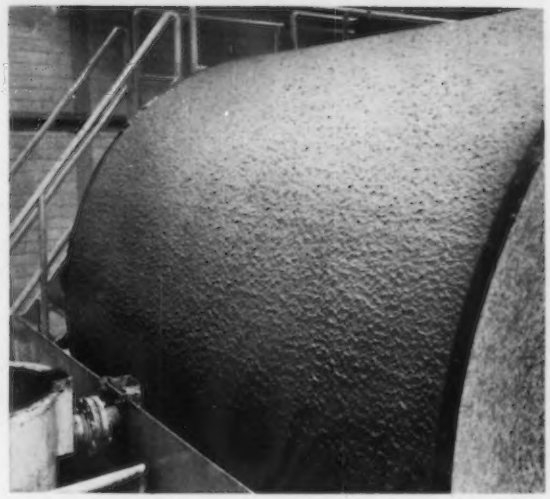
Removing Solids from Effluent

The first phase of the program was to remove the solids from this effluent. After laboratory and pilot plant evaluation and consultation with suppliers, it was decided that settling was the best way to handle this waste and a Rex Verti-Flo process clarifier supplied by the Chain Belt Co. was installed. The rectangular basin was more suitable for the space available, and previous experience with this type of unit in paper mill whitewater recovery had been very satisfactory. The tank is a concrete basin 20 feet by 80 feet with a side water depth of 7 feet which gives a detention period of 2½ hours. It is located so it can be gravity fed, and the effluent, in turn, is gravity fed into the Fox River. The Verti-Flo unit has four cells. There is an adjustable V-notched weir around the periphery of each cell to control the draw-off from each cell. Partitioning baffles extend across the width of the basin below each cross-trough to prevent short-circuiting between cells. A conveyor sludge collector has flights which travel at the rate of one foot per minute and scrape the sludge into a receiving hopper across one end of the tank. A screw conveyor is located in this hopper and moves the sludge into a sump located in one corner of the tank.

This unit was completed and put in operation in November, 1955. At that time, it was planned to pump the sludge from the clarifier into a neighboring municipal sewage treatment plant. A trial of two weeks was made, but it was found that the large amount of solids taxed the capacity of this plant. It would have required additional personnel at the municipal plant, addition of considerable chemical, and probably would have necessitated replacement of equipment within a few years as the treatment plant was 25 years old at that time.

Filter Unit Installed

Considerable development work was necessary to find a filter that could produce a satisfactory cake from this sludge by itself without a prohibitive chemical addition cost. In 1958, the Rotobelt filter supplied by Eimco Corp. looked promising; so, a pilot plant unit was installed at the mill for extended trials. These trials indicated that only very small quantities of lime would be required to produce a cake that would discharge from the belt filtering medium. The commercial unit was put in operation in November 1959, and it has been operating for the past several months with no lime addition. Operation without lime is ad-



Pickup side of drum shows sludge contactor for mixing conditioning chemicals with feed slurry if required.

Cake discharging from belt filter medium to belt conveyor.

vantageous as excess lime tends to plug the filter medium and it is difficult to remove.

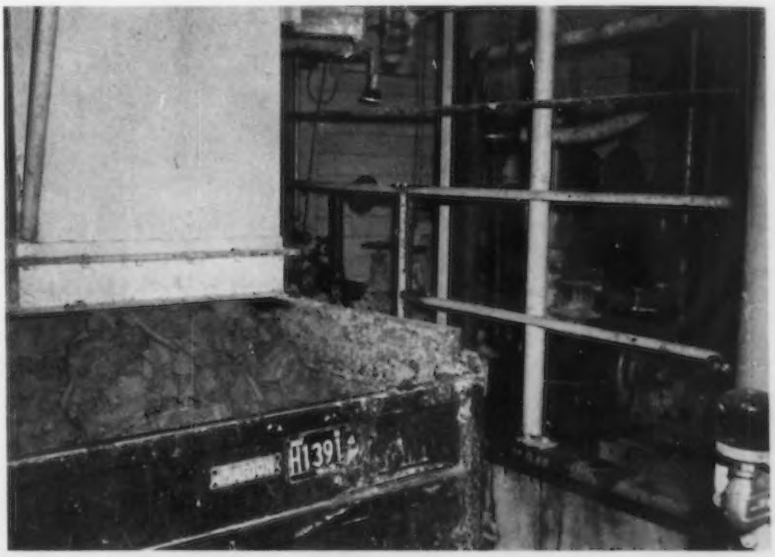
This filter is a 10 foot by 10 foot vacuum unit with a stainless steel belt filtering medium. The underflow from the clarifier is pumped through a sludge contactor to the filter vat at 300 to 800 lb./M gallons. The variation in solids depends on the compaction time in the clarifier. The vacuum pump has a capacity of 750 c.f.m. at 22 in. Hg and the filtrate pump can handle 60 g.p.m. at a 60 ft. head. The Marlow sludge pump has a U. S. Varidrive and pumps 25 to 75 g.p.m. at a 40 ft. head. The filter drum is also driven by means of a U. S. Varidrive at one to six minutes per revolution.

The deinking plant operates 24 hours a day and it is possible to handle all of the effluent solids in 8 hours operation of the filter. When the clarifier is operated 24 hours a day an effluent of one lb. or less of filterable solids per thousand gallons can be obtained and it was hoped that there would be enough holding capacity in the clarifier to maintain an equivalent effluent during the 16 hour down period, but this is not possible at the present time. Tests are underway to determine if operating the filter for two four hour shifts is satisfactory, or if it will be necessary to install sludge holding or compaction tanks ahead of the filter.

Sludge Disposal

The cake is discharged at 30 to 35 per cent solids and is transported by belt conveyor to a dump truck which is used to carry it away as land fill. At the present time, a ravine near the mill is being filled with this dewatered sludge. At the current rate, this area should be able to handle the material for seven years. In the meantime, it is hoped that some method of sludge utilization can be developed.

Further treatment is now required to reduce the B.O.D. of the clarified effluent as very little B.O.D. reduction occurs in primary treatment. Bench scale tests indicate that the activated sludge process will reduce the B.O.D. loading by 80 per cent. Pilot plant work is planned, based on these results, to determine the feasibility of including some papermill wastes in the process, and to obtain design data for a secondary treatment plant.



Truck for hauling sludge and retention hopper for use while unloading truck.

"After I Put The Right Pump On the Right Job, Then What?"

Set up a maintenance schedule and stick to it! This will depend on type and rate of production, but any such program should include these check points: bearing lubrication, packings, alignment, and wetted wearing parts.

L. B. Timmerman,
Pump Specialist,
Buffalo Pumps Division,
Buffalo Forge Co.

A major pre-requisite of an efficient papermaking operation is the proper selection, installation, application and maintenance of paper mill pumps.

Basically, a properly applied pump has low maintenance. The proper selection of materials and putting the right pump in the right job result in reduced maintenance costs.

In the selection of material, it is best first to rely on a corrosion expert or the experience of a manufacturer and secondly, try to use standard materials wherever possible. These standard materials cannot only be supplied in relatively short time, fast delivery of replacement parts, but at lower costs than special alloys. Standard alloys would include nickel-iron, bronze, 300 series stainless steel, 20 series stainless, Monel, nickel, and various high nickel-chrome alloys.

Putting the right pump on the right job also pays dividends. To aid the pump manufacturer in recommending the proper pump for the job, give complete information as to what is required of the pump. The following information should be supplied:

1. Number of units required.
2. Preferred speed and r.p.m.
3. Nature of liquid to be handled
   a. pH value
   b. Suspended solids and type
   c. Specific gravity
   d. Temperature and vapor pressure
   e. Consistency
4. If a paper stock, is it free or slow stock?
5. Capacity in t.p.d. or g.p.m.
6. Suction and discharge conditions.
7. Type of service.
8. Type of power available.
9. Pump location and system.
10. Special features required.
11. Satisfactory construction materials.
12. NPSH available.

Low maintenance costs result not only with proper application but with a well thought out and systematic maintenance program. Set up a schedule and stick to it. This schedule obviously will be dependent upon the type of paper mill and its production rate.

Check points in a maintenance program should include the following:

A. Bearings and lubrication.
B. Stuffing box (packing).
C. Alignment.
D. Wetted wearing parts.

Bearings and Lubrication

Either oil or grease of the proper quality may be considered for lubrication of ball bearings. When grease is used, care should be taken to see that the bearing housing is not filled more than two-thirds full. Overgreasing can be as destructive to the bearing as under-greasing. The bearing will run hot and in many cases, the temperature will exceed the upper safe limit specified by the bearing manufacturer for the bearing. The bearing life and efficiency will be shortened and this will lead to frequent replacement of bearings. When oil is used as a lubricant, the level of the oil should be kept about to the center of the lowest ball or roller when bearing is stationary. Too high an oil level will lead to leakage and overheating due to churning. The quality of the lubricant employed is important. Only good quality neutral mineral greases and oils should be used. Generally speaking, animal or vegetable oils should not be used because of the danger of deterioration and the forming of acids which are detrimental to efficient operation.

We recommend the use of a soda soaked grease for temperatures in the range of minus 5° F. to 160° F. and for short periods up to 210° F. If this grease melts, it will not separate but will run to its original state when the temperature is lowered.

A good bearing grease should have freedom from chemically or mechanically active ingredients such as free lime, iron oxid, and similar mineral or solid substances of any character. It should be free from the slightest possibility to change in consistency i.e. thickening or oil separation and acid formation. The melting point should be considerably higher than the operating temperature.

GOOD QUALITY OIL

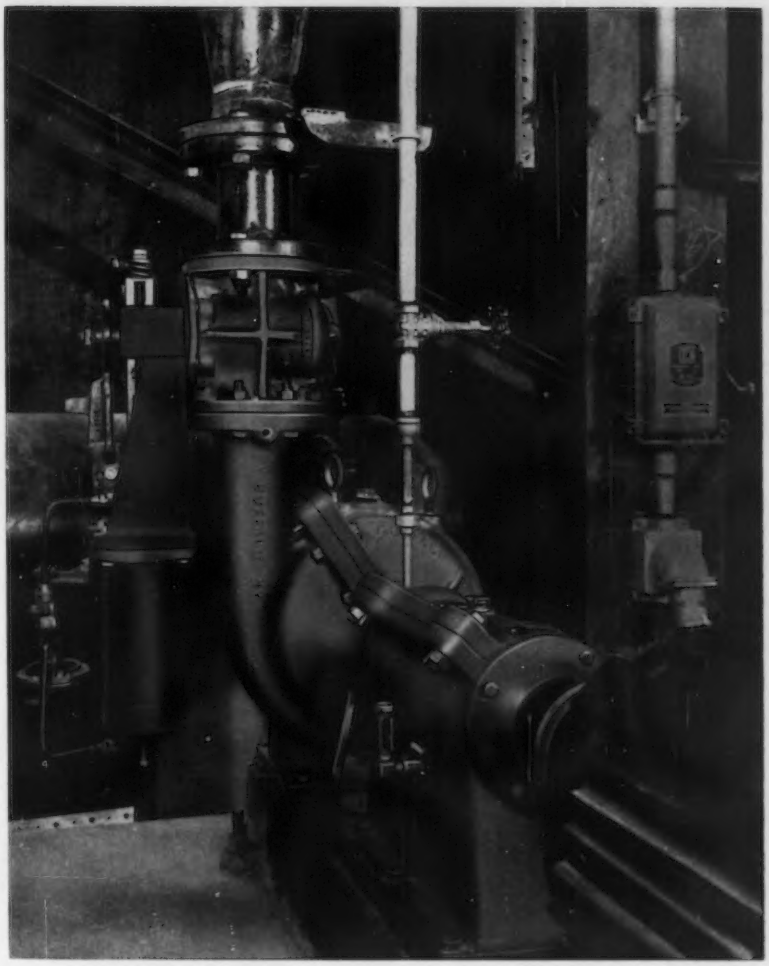
The choice of a good quality oil is considerably easier. They are more uniform in their characteristics and

if they are resistant to oxidation, gumming and evaporation, they can be selected with primary regard to viscosity. Where possible, the viscosity at the operating temperature should be at least 70 seconds Saybolt for ball bearings, 100 seconds Saybolt for roller bearings and 150 seconds Saybolt for spherical roller thrust bearings. Further information regarding the change in viscosity should be obtained from a competent lubricant manufacturer.

Ball and roller bearings consume only a part of the lubricant. It should be remembered that a lubricant must always be present in the bearings to avoid costly injury. How long a bearing can run without grease or oil depends upon the lubricant's properties, the size and design of the bearing, speed and other operating conditions. To accurately predetermine when lubricant should be added is not possible.

Time alone causes a deterioration in grease. It is good practice to replace the grease after one or two calendar years even though the bearing has not run the normal relubrication hours. These hours or intervals for grease are as follows:
3000 Hours at a speed of 1200 r.p.m.
1400 Hours at a speed of 1800 r.p.m.
800 Hours at a speed of 3600 r.p.m.

Bearing housings with oil sump which is to be filled to a given level are equipped with an oil gauge. This permits checking the level of the oil only when the bearing or the pump is standing still. Oil is added only when level is dropped below its established lower limit. Addition of oil should only be done occasionally. The oil must be drained out and new oil added when the old oil becomes dirty or cloudy. This depends upon operating conditions. If the bearing temperature is below 120° F. to 140° F. and there is no danger of dirt contamination, a lubrication interval of one year can be considered sufficient and satisfactory. When bearings are cleaned, they should be flushed thoroughly with kerosene or gasoline and wiped dry with a clean cloth. Dirt and other foreign substances will quickly destroy bearings. If the pump is to be kept out of service for any length of time, it is advisable to fill bearing housing completely with grease to avoid atmospheric corrosion. It should be remembered, however, that the housing should be drained of grease until the level is normal before the unit is put again into opration.



Properly installed and applied centrifugal pump operating on kraft stock at four per cent consistency.

Stuffing Boxes and Packing

Unless otherwise specified, pumps are furnished with a top grade of square braided asbestos packing for temperatures to 180° F. maximum and rubbing speeds to 1000 f.p.m. maximum. A top grade of plastic metallic packing is furnished where there is a high suction pressure, temperature in excess of 180° up to a maximum of 550° F. and rotating speeds in excess of 1000 f.p.m. Other packings obviously are used where corrosion or erosion indicate.

A bulk type packing should never be used under any circumstances on a centrifugal pump.

If the pump is to be shut down for a considerable length of time, the packing should be removed from the stuffing box and the shaft on the box should be thoroughly cleaned and slushed with a protective coating. This eliminates any possibility of pitting action and shaft seizure and keeps the wearing surfaces in good condition. Never install new rings of packing unless all the old rings have been removed from the stuffing box.

A bulk type packing should never be used under any circumstances on a centrifugal pump. Square braided asbestos packing is generally furnished unless other kinds are specified for special conditions.

WHEN TO WATER-SEAL

Whenever the pump is handling liquids handling dirt, grit, solids in

suspension, chemicals that crystallize or sticky substances which would damage the packing in shaft sleeves, a water seal with an independent supply of clear water or other contaminated clear liquid should be provided. The water seal is placed below tapped openings in the outside diameter of the stuffing box and water or clear liquid is provided at that point. This provides a flushing action of clean liquid through the box and into the pump. This prevents the foreign substances being handled from entering the stuffing box and attacking or becoming imbedded in the packing with resultant abnormal wear on the shaft or shaft sleeve. The piping supplying the sealing water should be fitted tightly to eliminate possibility of air leakage. Otherwise, a small quantity of air entering the suction at this point may result in pump losing its prime when operating under suctionless conditions. On all double suction pumps, the pressure of the sealing water should be at least five p.s.i. in excess of suction pressure. This would also apply to single suction pumps when handling clean liquids.

Care should be exercised in repacking the stuffing box. In placing the packing, each packing ring should be cut to the proper length so that the ends come together but do not overlap. The succeeding rings of packing should be placed in the box so that the joints of adjacent rings are staggered. If the box has a seal cage, be sure when repacking to place sufficient packing back of the cage so that the sealing water is brought in at a seal cage and not on the packing. The packing must not be pulled too tightly or short packing life and shaft sleeve wear will result. The glands should be tight enough to prevent air leakage and loose enough to allow free turning of the shaft. A small amount of water leakage at the gland is evidence of satisfactory sealing. Most pumps are provided with adequate drip basins to catch this leakage which should be piped away to the drain provided.

BREAKING-IN PACKING

Proper breaking in of the packing is most important. The gland is brought up tight and then backed off until only finger tight. The packing should not be so tight in the box that the shaft cannot be turned over by hand. Upon turning over the shaft by hand, the rotating shaft should come to rest gradually and easily. If the stuffing box is equipped with an outside water supply to the packing and/or seal cage, this could be turned on. There should be a generous leakage of liquid issuing from the box at the gland.

When the pump is started, adjust the packing gland to retard the leakage slightly. The gland adjustment is made by turning down the gland notch one flat at a time. Each adjustment is made at a period of from 10 to 15 minutes. It is important that the gland be taken up evenly at all times because a cocked gland can lead to serious trouble. The use of a pair of inside calipers is helpful in making the gland adjustment.

It is important not to stop the leakage completely as this will result in scoring of the shaft sleeve and burning of the packing.

Gradual adjustment should be made until an operational drip of one to two drops per minute is issuing from the box. This is generally normal. However, dependent upon the shaft size, rotating speed and liquid being pumped, one or two drops per minute may not be sufficient to allow for efficient packing performance. It is necessary that enough liquid be issuing from the stuffing box to keep it cool or slightly warm to the touch of the hand.

Care must be exercised to secure perfect coupling alignment. Remember, a flexible coupling will not compensate for misalignment, which only results in bearing wear and lowered efficiency.

Alignment

Pump and driving element must be correctly aligned at the job site to avoid mechanical trouble. The pump is correctly aligned with drive before shipment from most pump factories. However, that alignment may be disturbed during shipment or by incorrect levelling of sub-base on the foundation. A pump base, no matter how massive or heavy it may be, can be sprung out of line by uneven supports or strain set up by pipe connections. **A flexible coupling will not compensate for misalignment.** Care must be exercised when installing the pump to secure perfect coupling alignment. Poor alignment results in abnormal coupling and bearing wear and lowered efficiency. The entire unit should first be temporarily mounted on the foundation and the bolts removed from the coupling. Pump ends should be connected to the piping. If hot liquid is to be handled or if the prime motor is steam-driven, the pump and prime mover should be brought to the normal operating temperature. The latter step is especially important as it eliminates the possibility of misalignment due to expansion. After the sub-base is levelled up, adjust to final positions by shims and wedges so as to bring the two halves of the couplings into perfect alignment.

In the case where a pump end is mounted directly on the base separately from the bearing frame, a careful check should be made to assure the pump is perfectly aligned with the bearing frame. This is done by checking the distance between the shaft and the stuffing box bore at quarter points with calipers or a machine dowel. This distance must be exactly the same at all points to assure perfect concentricity. A feeler gauge should be used between the impeller and the clearance ring at the pump suction to be sure that the axial clearance is the same at all points.

CHECKING ALIGNMENT

The checking of the alignment of the coupling is done in a number of different fashions, dependent upon the type of coupling used. In the case of the rubber bushed coupling the parallel alignment is checked by straight edge across the coupling flanges with angularity alignment checked by thickness gauge or inside calipers at four points on the inside faces of the coupling.

On all metal couplings, the parallel alignment is checked by pushing the outer sleeves apart and drawing a straight edge across the lining surfaces of the hubs. Angular alignment and gap may be checked by thickness gauge or inside calipers at four points 90° apart between the inside spaces of the hub.

In the case of rubber bushed flexible couplings, these should be checked occasionally to see that the pins and bushings are in good condition. All metal couplings require periodic inspection and lubrication. Follow the final check on alignment after unit has been grouted into place—the coupling flanges should be wiped off and all dirt and grit removed from the

interior and the flanges bolted solidly together using the special gasket supplied. A high grade heavy gear lubricant is used on this type of coupling rather than a grease or ordinary machine oil. It is important to check the lubricant in the coupling at the same time lubricant in the pump bearings is investigated.

Wetted Wearing Parts

In making periodic inspections of the wetted wearing parts of the pump aside from the stuffing box and resultant shaft sleeve wear, it is important to check the clearance between the impeller and wearing ring or rings dependent upon the type of pump.

When inspecting a paper stock pump or double suction pump utilizing a lateral type clearance ring, it is desirable to maintain an operational clearance of .015 inch. In the event this clearance exceeds .030 inch the rings should either be replaced or by relocation of bearings, the initial clearance should be obtained. This will insure continued high efficiency and maintain rated capacity and total head for which the pump was designed.

The shaft sleeves should be carefully inspected for signs of drastic packing wear and scoring. If it is not badly scored, it may be cleaned up in the lathe and it is not necessary to remove it from the shaft.

It is important to maintain a card file on each pump with respect to the rate of corrosion when handling corrosive liquids. After a period of time, it will be evidenced by the rate of wear how often impellers and wearing rings and shaft sleeves should be replaced based on this rate of wear. This also will be a definite indication as to the desirability of the change of material in the event wear seems to be excessive. In the case of the impeller, wear is most noticeably evidenced at the ring fits and the tips of the impeller, both inlet and exit.

Casing wear will be first noted at the volute cut-off and at the stuffing box throat. In most pumps, a stuffing box throat bushing is utilized, thereby allowing replacement of the bushing rather than metalizing and reboring of the casing. Replacement of this bushing, when worn, restores new pump performance.

To summarize—first, proper selection; second, proper installation; third, proper application; and last a maintenance program insure economical pump performance and mill operation.

PJT NEW LITERATURE

Louis Allis
Motor Line

Outlines an extensive line of electric motors to meet a broad field of application requirements. Features 23 types of motors with photographs and brief descriptions on application uses and available ratings enclosures and modifications. A complete line of AC and DC. Bulletin 2651, The Louis Allis Co., 427 E. Stewart St., Milwaukee, 1, Wis.

SpaceMaker
Controller

Describes design and operating features of a new concept in high voltage control—a 2 to 5 kv controller so compact that two fit where one ordinary unit used to go. It's the first unit in its voltage class to feature complete drawout construction for easy inspection and many other design features for reliability, added safety and easier maintenance. Bulletin 14B9739. Allis-Chalmers, Milwaukee 1, Wis.

High-Pressure
Cast Steel Valves

Lists dimensions and weights for 600 lb., 900 lb., 1500 lb., and 2500 lb. Gives outstanding features, cross-sectional and sideview drawings. Primarily used in steam generating plants, important application in utility, pulp and paper, marine and chemical industries. 6 pp. Bulletin. Walworth Co., Valves and Pipe Fittings, 750 Third Ave., New York 17, N. Y.

Link-Belt Multi-
Bearing Takeup Frames

Tells how frames can accept any type standard pillow block, can be used for either top or side mount of bearing, and will mount on any type of support—I beam, angle, channel or plate. Rigid, compact all-steel. Available from stock in range of sizes to accommodate shafts up to 2 7/16 inch diameter and for adjustments from 6 to 24 inches. 2pp. Bulletin #2821 Link-Belt Co., 530 5th Ave., New York, N.Y.

A New Kind of Diesel
Work Power

Describes models 10000 and 11000. Performance curves, charts, and illustrations, including cutaways of important components. Has work power with new high in efficiency . . . . and a light appetite for fuel. Fuel economy means clear operation, less trouble and longer life. 8 pp. Bulletin. Allis-Chalmers Mfg. Co., Engine-Material Handling Division, Milwaukee, Wis.

Reliance Duty Master
Fractional H.P. Motor

Gives a comprehensive description of the construction and design details. Offers many advantages—a new ventilation system up to 10% cooler than other comparable rated motors—weight has been reduced 33% from preceding motor designs—maximum protection in enclosure—resilient mounting reduces noise to a minimum. Bulletin B-2514. Reliance Electric and Engineering Co., Cleveland 17, Ohio.

Valve Sizing
Charts

Contains simplified charts covering steam, liquid, and gas service and cross-reference method of compiling which makes sizing easy by eliminating the need for rulers, formulas, or slide rules. Extremely accurate as based on many tests. The importance and necessity of proper sizing cannot be over-emphasized. Bulletin. OPW - Jordan, 6013 Wiehe Road, Cincinnati 13, Ohio.

Rex Side Bow
Roller Chain

Describes these chains which are ideal for curved applications on such equipment as bottling, packaging, canning, and baking conveyors. Available with a variety of attachments. Gives maximum service under abnormal conditions. Cost-cutting freedom in conveyor layouts throughout industry. 4 pp. Bulletin. #603P, Sales Promotion Dept., Chain Belt Co., Milwaukee 1.

Let's Rationalize Sheet Production

Present finishing operations being discontinuous are open to all the hesitancy, delay and carelessness to which operating labor is subject. The author proposes a continuous operation from entering roll to packaged sheets.

D. C. Beaulieu,
Research & Development Dept.,
Kimberly-Clark Corp.

In the production of almost any product, it is a rationalization to say that the demand is for better, greater and cheaper production.

In the production of paper in sheets, "Rationalization" may be defined as the steady effort to improve the work means and the work progress through the production system. The thought may be further extended and defined in terms of "Mechanization" and "Automation." Rationalization therefore approaches the exact, calculated mechanical progress of the work to the exclusion of human weaknesses such as fatigue, inattention, forgetfulness, and the human reaction against maintaining a steady work pace, and includes technical means for insuring rapid and steady production with high and non-varying quality unattainable by human beings. In such a planned rationalization, man would be more a watchman of the process performed by machines and less a doer. Mechanical motions will be substituted for human motions.

In the production of paper and the flow of materials involved, all the elements involved travel in an orderly, continuous train from the woodroom through to the winders. There appears a sudden end to continuity when the paper reaches the sheeting and finishing operations.

Lack of Modern Thinking

Throughout the entire process up to sheet finishing, the pulp and paper producing equipment is watched over and continuously tested and regulated by instruments and control mechanisms and the operations watched and controlled by, not largely done by, human beings. But, when the paper reaches the sheet finishing operations, there is an immediate and lamentable breakdown in this continuous, watched over, flow. In this area we encounter not only a general lack of modern machinery, but more lamentably **a lack of modern progressive production minded thinking.** We proceed in this area largely by tradition, utilizing the same product flows and equipment prevalent since, probably, the first finishing room was established, and until recently largely untouched by methods of technical advancement.

Investigation of the field of available equipment indicates that advances have been made in the development of the individual producing units to permit almost full mechanization and a close approach to automation provided the **thinking** can be adjusted to take advantage of the same.

It is in the human mind, conditioned perhaps by the years of doing things in the same old way, that we encounter our first, and so far, insurmountable road block. The pressure of rising costs and decreasing profits has resulted in the past several years in the refinement of the basic equipment items used in sheet production. These separate units, however, refined, are traditionally still hung together in the product flow substantially as they have been in the musty past. The thinking in the finishing area seems to be . . . "Improve the cutter, or the trimmer, or whatever, but let's keep each operation separated as much as possible from each other."

Skid Load is Road Block

Let us consider the traditional flow of product through the sheet finishing operations. The product enters as a roll, of varying size and weight. The roll or rolls are unwound, cut into suitable width and lengths and piled into a stack or **skid load** usually of one or more thousand pounds in weight—in any event a great many reams or sheets. And here is the genesis of the "road block." For the **skid load** has now become the unit to be manhandled through the process, even though all future operations revolve around the amount or "lift" processed through the trimmer. And this "lift," by way of contrast to the "skid load," is only a small fraction of the latter. Nevertheless it is the unit which is unloaded from a skid, manhandled through the trimmer and reloaded into a skid load once more. Such an operation, discontinuous by its very nature, is open to all the hesitancy, delay and tendency toward careless, wayward attention to which operating labor, being human, is subject. Further, unless the incentive system is used, there is little to place productive effort to its most productive level. Also, as the hours pass, the effort slackens and production drops accordingly. It is with increasing reluctance that "start" buttons are pushed and yesterday's baseball score becomes increasingly important as a subject for discussion as the hours lengthen and muscles tire.

Unless all the paper is sorted, diversion of part of an order through the sorting operation leads to disorganization as the bulk of a shipment is almost invariably held up awaiting the sorted paper or vice versa. This in turn involves excess handling, storage space and the inevitable damage and shrinkage of product. In fact, the entire operation is the antithesis of all the operations previously conducted throughout the paper-making process.

A Fresh Look

Let us now consider finishing anew from the following points of view.

1. Man being subject to mental and physical fatigue shall be paced by a machine, which never tiring not only

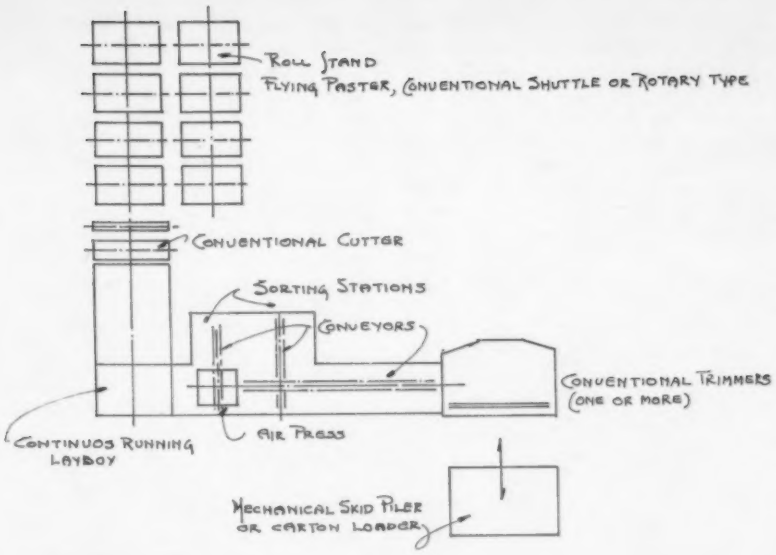


FIGURE 1. GEOMETRY OF LAYOUT will depend on space available, No. of trimmers sorting stations and other local conditions. Layboy will discharge to either side. Split sheets as well as whole sheets may be handled. For untrimmed paper omit trimmer and go direct to piler.

proceeds in a steady and orderly fashion but relieves man of mental and physical strain.

2. A machine or a mechanical system, even though not operated at full throttle, nevertheless proceeds to do its work in an orderly, steady, accurate and untiring fashion.

3. Adopt the maxim that once having grasped a unit of work load, not to relax our grip on it until all motions have been completed and a finished unit is delivered by the machine.

4. Man shall become the "watcher" of the machine and not the "doer" of the work involved.

5. We shall draw a line between the machine and calender room on one side and the finishing room on another and say—on that side lies the papermaking, on this side is a "converting" operation, and separate our thinking accordingly.

Let us rationalize the above into an orderly method or system or combination of machines and motion and see what is required. First is that of converting a continuous web of paper into separate sheets of a desired size and shape, **second,** that these be of a required, accurate size, **third,** that they be produced in the most economical manner practicable.

The complex in order to perform the functions involved in converting rolls to a finished order of sheets would be composed of essentially the same elements as used in the conventional method, but modified, rearranged and operated as part of a continuous system. A stripped down skeleton complex is shown in Figure 1.

Backstands with Flying Pasters

The first unit to be considered is the backstand. This would provide for flying pasters and thus continuous roll to roll running. Various means for making such pasters and roll transfers now exist and the actual design of such a backstand is not a difficult matter. However, objections will immediately be voiced. The first objection may be that all rolls may not contain the same footage as others and splices made on single webs at random will impose an immediate increase in the sorting load.

With single sheet 100 per cent sorting methods this might not be a serious objection, with quality inspection based on a sample size of acception or rejection it would be more serious. The answer is metered rolls with substantially the same footage in each roll going to the cutter. If this is too radical a step, we would point out that in many industries such a method is considered normal and certainly it should be no more difficult to accomplish than that of running rolls to a given diameter, or at worst accepting the present method of running the rolls out of a set one by one and varying the webs cut until the last roll runs out. With less efficiency a double backstand could be used, involving a stop but a substantially shorter down time for changing cutter sets.

Continuous Cutter

The second unit consists of a cutter arranged to cut continuously, pile into trimmer lifts and discharge each lift automatically into a conveying system for further processing. This type of cutter is now commercially available and the prototype has run in production for hour after hour without missing a transfer or causing delay of any sort. It will handle split sheets of different widths as conveniently and easily as single width sheets. We can safely say that the continuous cutter exists, for operation on any of the book paper or fine paper grades.

Conveyor Systems

Passing to the conveyor system, these already exist in a variety of methods, some using a slat type of movable platform, others air floated platforms with arms pushing the work load over the same. Any of the various types would prove acceptable.

As an auxiliary to the conveyor, it is well to consider a press for expelling air from between the sheets as delivered from the cutter. This should be located directly at the point of cutter discharge and serves the dual purpose of insuring stability of the pile during conveyor movement and also greater accuracy of sheet size when trimmed in the guillotine. This equipment is also commercially available.

Sorting Simplified

As seen from the sketches, all or part of the production now passes through the sorting operation. Sorting is a direct reflection of quality delivered to the cutters for processing. If the line under discussion is a high production unit, then only good paper should be delivered to the cutter backstand by the paper mill. Defects inherent in the sheet should be and are detectable before being delivered to the cutter backstand. Surface defects such as coating streaks, dusting, calender cuts and the like are readily identified. Mechanical defects such as holes, rope marks, slack areas, etc., can be easily identified by various means and if at an excessive level should never reach the sheeting operation. The development of commercial electronic sorters has made all this possible. The sorting load should therefore be light and limited to spot checking

and to identify minor defects such as dog ears, half sheets, etc., which can be incurred during the cutter operation. Means for sorting varies all the way from visual sheet by sheet sorting to mechanical and electronic means of scanning the sheet surfaces.

Automatic Trimming

The conveyors automatically deliver the lifts to a standard guillotine trimmer equipped with automatic sheet sizing devices or spacers. These machines are capable of high production but cannot under ordinary circumstances begin to produce at the same rate as a sheeter cutting multiple webs at high speed. It may be necessary to provide more than one such unit per line. There is now available a trimmer capable of automatically trimming all four sides to any given sheet size within its size range. While not presently so set up, its operation could be made truly automatic with further development.

If the paper is not to be trimmed, then the layout is even simpler as the paper passes directly from the cutter to the piler. A number of satisfactory pilers are now commercially available for handling the trimmer output and this phase of operations presents no difficulty.

Beyond this point, handling and packaging mechanically and efficiently are limited only by the degree of imagination exercised. Suitable equipment is available for utilization and continuous packaging lines are certainly feasible and possible.

Objection to System

Critics of this method of operation will be quick to point out limitations, real or fancied. One such may be that inherent in all mechanized lines, i.e., a delay or shutdown of one unit in the train results in eventually delaying or shutting down of the entire unit. This is an inherent feature of all automated or highly mechanized production lines and even as the objection has been overcome in other industries, so it can be here. To take care of minor fluctuations in the rate of flow between components a certain degree of storage can be provided.

It may be that objection will be raised from the planning aspect, that flexibility is lost, etc. It is difficult to see how this can be valid objection if the entire operation is planned so that the right size rolls, skid platforms, etc., are available as needed. If, in fact, it would appear that planning or lack of flexibility might be a real objection, then it is suggested that a good close look be taken at the planning system itself to see if it in fact might not need some overhauling. It is here that the major roadblock will probably be encountered.

Summary

Whether the foregoing is a true rationalization of the finishing room problem or not I leave with the reader for decision. A final thought is that once again the various finishing room methods have practically reached a limit of development around each separate unit and any further advance must of necessity be of a radical nature, such as perhaps, combining the units into a continuous flow system as set forth above.

Mechanized Foreman Saves Shoeleather, Time and Money

One woodyard foreman saves himself a lot of time—one hour a day—and saves his company a lot of money—$20 a week—by using a Cushman Truckster. In addition, he is able to save 83 per cent of his travel time and thus take on other duties.

Supervisory time saving has been the subject of considerable study by Cushman Motors recently. This company, a subsidiary of Outboard Marine Corp. in Lincoln, Nebr., manufactures a line of three-wheel vehicles called Trucksters that are used for in-plant personnel transportation. The Cushman thesis is that by streamlining supervisory in-plant travel, management is able to save enough time so that it can broaden each supervisor's responsibility and also quickly pay for the cost of the vehicle.

In the typical case of the woodyard foreman, the man had to walk almost three miles per day to carry out his job responsibilities. This foreman's salary was $4 per hour or $160 based on a 40-hour week.

Average walking speed is 2.5 m.p.h. Riding on a gasoline-powered Cushman 780 Truckster can be done at an average speed of at least 15 m.p.h. Therefore, the foreman can ride the three miles per day on a Truckster in 0.2 hours as opposed to walking the same distance in 1.2 hours. Figuring this time saving at $4 per hour, we find that mechanizing this supervisor saves $4 per day or $20 each week. At this rate, the Truckster which costs approximately $800 will pay for itself in time savings alone within 40 weeks' time.

In addition, the Truckster 780 can also be used to move in-plant mail, materials and equipment to various points on the mill grounds. In such applications, the Truckster 780 will carry an 800 lb. payload.

This makes the vehicle particularly applicable for speeding maintenance workers and equipment to the point where repair work is needed.

Another typical example involves a maintenance foreman. This man's salary is $150 per week or $3.75 per hour based on a 40-hr. week. In the course of his work, he makes regular daily inspection tours plus many unscheduled trips around the plant. In one day, he covered a total of 15,450 ft., or almost three miles.

If this foreman had been riding a vehicle, such as the electric-powered Cushman 730 Truckster, at an average speed of 7.5 m.p.h., the time spent going from place to place would have been only 0.4 hr. This would have meant a saving of $3, or 67 per cent of the man's travel time. Similarly, a plant superintendent whose salary is $15,000 per year could save $5.77 for one day.

Because of the nature of the 730 Truckster, a tandem seat can be added to carry another passenger, or the unit can be used to carry up to 200 lbs. of tools and parts.

By mechanizing the plant security force, a guard can patrol an area more than twice as large. Greater protection is also provided because the guards can quickly move from one location to another.

JAGENBERG

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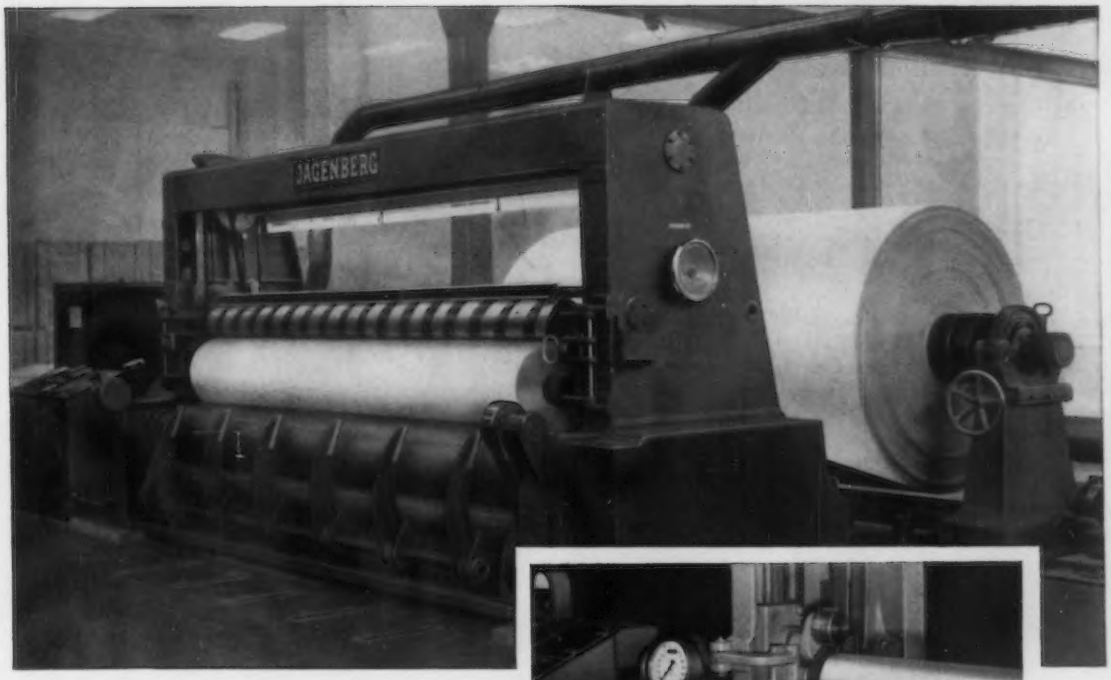
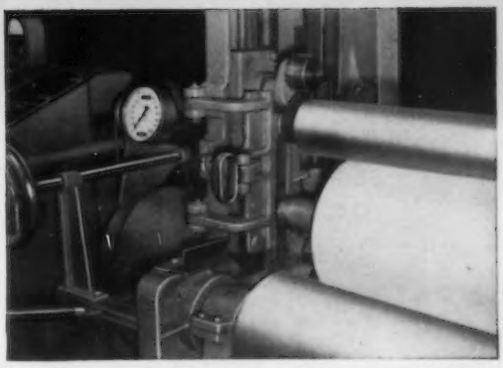


PNEUMATIC WINDER

The machine pictured here is a 142" wide Type 30 Winder in a German Board Mill, slitting and winding coated and uncoated folding boxboard.

- **Outstanding Features:**

"Multi-Shear" slitters for true shear cut and fast size changes
Rapid acceleration and deceleration
High average speed
Straight-sided rolls; variable roll density
Automatic tension control
Semi- and fully automatic web threading devices
Built-in roll ejector and lowering device



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Batch Debarking of Undersize Pulpwood Showing Promise

Stick-by-stick feed type debarkers of small diameter pulpwood have shown limited success. This article tells how a batch type debarker, which may have application in this country, is proving profitable for a Norwegian pulpwood producer.

J. A. Holekamp,
Forest Engineer,
American Pulpwood Ass'n.

Figure 1: Bundles herded into slip for feeding into debarker. Note ¾-inch cable slings for handling.

There is considerable interest in the United States in developing a practical method to handle and debark undersize pulpwood. This class of wood, mostly considered non-commercial, would be comprised of, for instance, thinnings from young pulpwood stands, or tops from cut trees. Some companies are now experimenting along this line with debarkers of the stick-by-stick feed type, but they are meeting with limited success.

One point of high cost in such an operation is in the breaking down of bundles to assure a steady feed through the machine. Secondly, the debarking rate seldom appears in proper balance with the capital investment in equipment and the operating costs. It was this same set of conditions that did much to bring on the demise of slab debarking at concentration yards.

One Norwegian forest owner, George Sibbern, of Grue, is placing high hopes in the package handling and batch debarking of pine and spruce non-commercial thinnings. He has installed a box-shaped debarker sized to handle bundles of 10-foot long thinnings. Each truckload of 10-foot thinnings, averaging 4.14 cords, is contained in a bundle by two wire cables. The bundle is dumped into a water storage pond and floated to the debarker (see Figure 1).

Here it is handled in and out of the open-top debarker by an overhead hoist (Figure 2). During debarking the cables are loosened but not extracted from the bundles.

At the bottom of the debarker are four chains with triangular-shaped cleats (Figure 3). These chains run

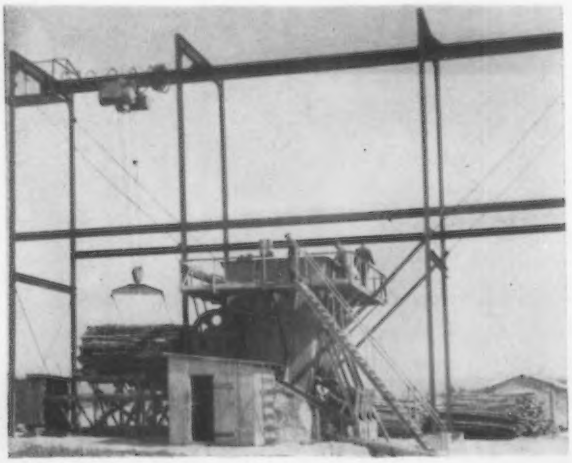

Figure 2: View of the debarker and overhead hoist. Note chain drive sprocket (left center) and bark sluice (lower right).

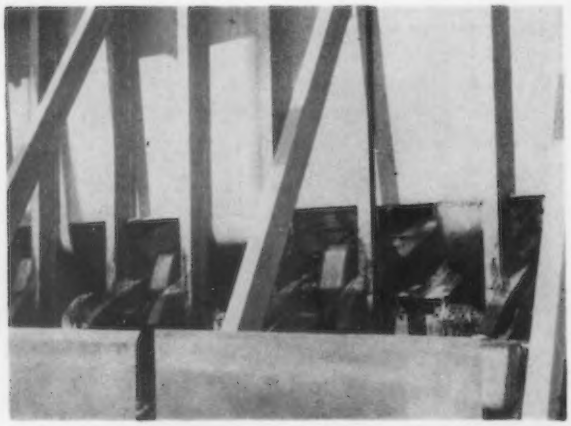

Figure 3: Close up look at the chains and cleats running up the debarker's inclined bottom.

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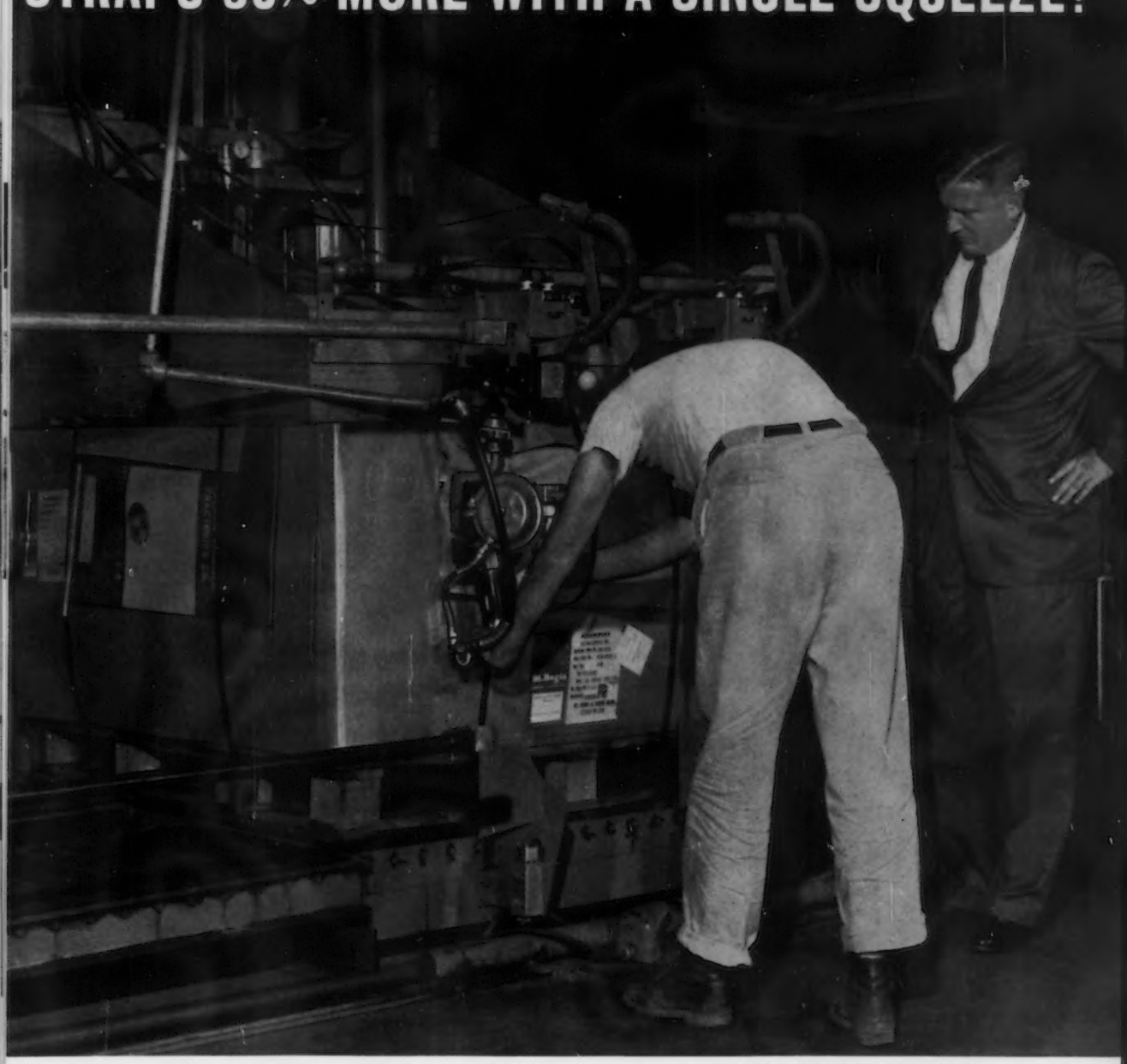

Acme Idea Man J. R. Taylor views Idea No. S3-68 which he suggested to St. Regis Paper Company, Pensacola, Florida.

St. Regis Paper Company now applies all four straps under a *single* compression cycle—secures as many as 124 mixed pallet-loads of multi-wall bags per 7½-hour shift!

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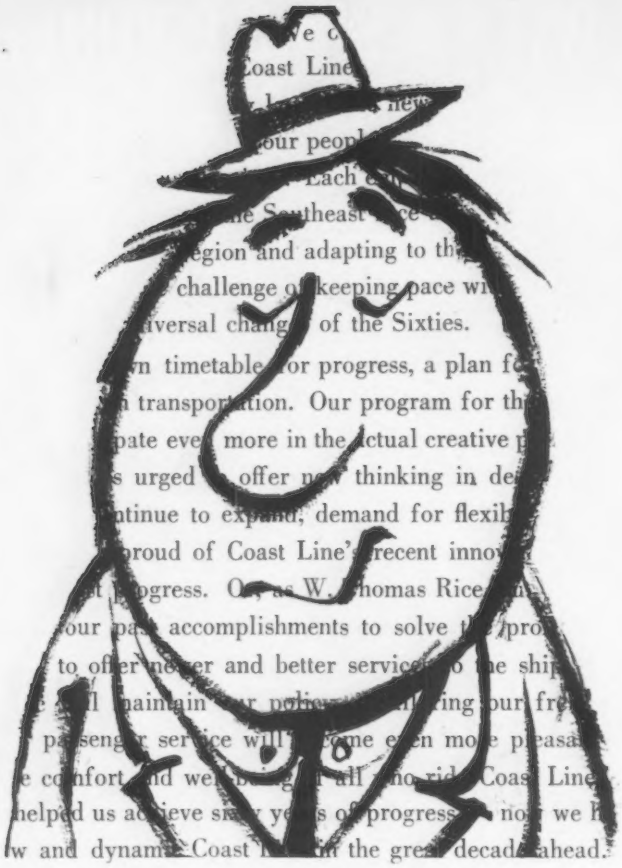

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at right angles to the longitudinal axis of the sticks and up an incline of approximately 30 degrees. These chains impart a circulating motion to the charge of thinnings. Barking is accomplished by a rolling, rubbing action of one stick against the other.

Water is sprayed into the debarker from nine points above and below the charge of wood. This facilitates debarking and also washes the bark into a trough that can be observed in the lower right hand portion of Figure 2. When debarking is completed, the bundles are removed by the overhead hoist and lowered onto a deck of gravity rollers. From here, the bundles are shipped to the mills via a combination of truck and rail transfers.

Peels Seven Cords an Hour

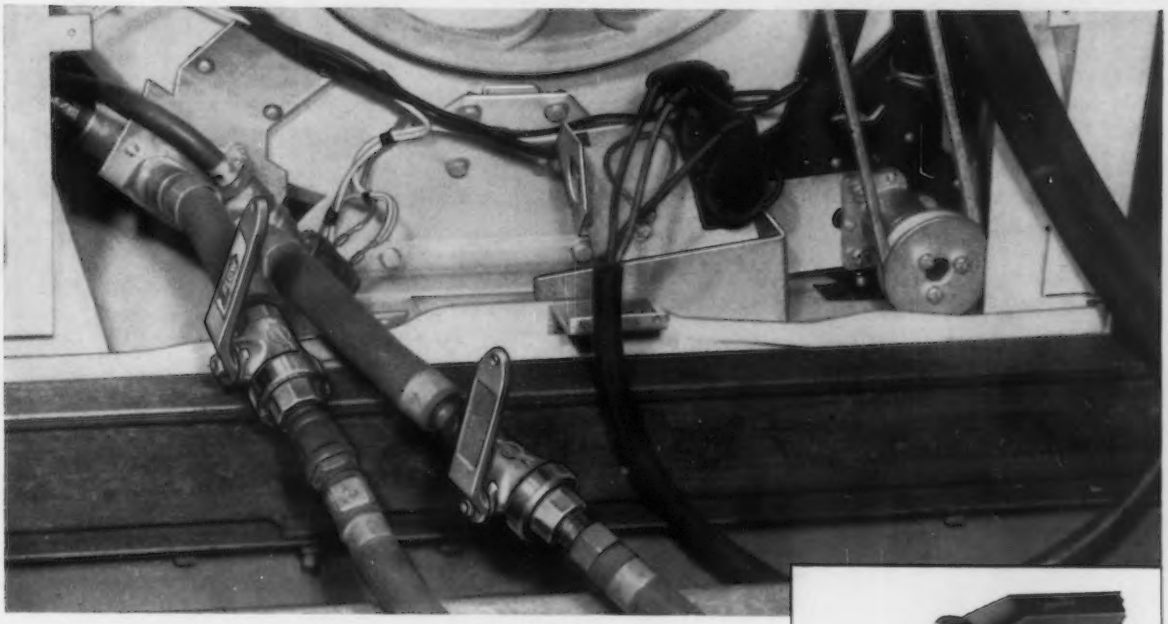
It requires 20-25 minutes to debark a single bundle of sticks with tightly adhering bark. A comparable bundle of Southern pine would probably require half this time. Some inner bark remains on the individual sticks. Production averages two bundles an hour or 16 bundles per 8 hour day. This is conservatively equivalent to seven peeled cords an hour or 56-60 cords per day. It is noted that the pine and spruce sticks are generally very straight and well-trimmed. Individual trees or stems that comprise the bundle measure four to five inches at the stump and one to two inches at the top. There are two and sometimes three 10-foot sticks per stem.

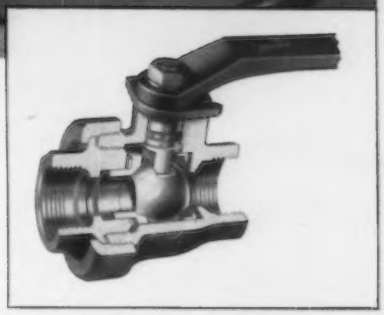
The debarker is manufactured by Wappland Co. of Söderhamn, Sweden. It is one that is commonly seen at Swedish pulp mills where white birch and spruce and pine are mechanically debarked. The debarker's chains are driven by a 60 h.p. motor through a large chain and sprocket reduction gear noticeable in Figure 2. The water pump is powered by a 10 h.p. motor.

The width of the debarker at the Norwegian installation is 12 feet. Its electric hoist is rated at 10 tons capacity and is operated by one of the two yard men standing on the debarker's platform. Because of the debarker's relatively simple construction and the absence of any pounding action, low maintenance costs are anticipated. The capital investment of the Norwegian installation is reported to have approximated $43,000 in equivalent U. S. currency. This cost included all yard equipment and construction.

Based on Technical Release No. 60-R44, from the American Pulpwood Association.

HUNDREDS OF THOUSANDS OF TURNS AND 2 YEARS LATER . . .





Rockwood Ball Valves are STILL ON THE JOB!

In the Easy Laundry Appliances Division, The Murray Corporation of America, Rockwood Ball Valves prove their dependability day after day. Used in the 100% testing of the famous EASY Golden Regent automatic washing machines for water load, leakage and rinse cycle selections, these ½" Ball Valves are opened and closed hundreds of times a day. Now after two years in operation, these Rockwood Ball Valves are still leakproof and require no maintenance.

Their full, round flow, tight seal and smooth, easy opening and closing features provide the highly efficient valve performance required by this manufacturer.

You too can depend on this same efficiency with Rockwood Ball Valves that are designed and engineered to give longer, trouble-free service.

Consider these four exclusive features when you're thinking about your own valve problem:

1. The valve with full, round flow — valve opening same diameter as pipe . . . causes no turbulence.
2. Leakproof — even after continued use.
3. Quick opening and closing — with quarter-turns under full pressure.
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Rockwood Ball Valves are today giving outstanding service in oil refineries, food, paper, textile, chemical and rubber plants. Valves are available in pipe sizes from ½" to 10" with 300 p.s.i. working pressure. For further information regarding your use of Rockwood Ball Valves, send coupon today. Tested and listed by Underwriters' Laboratories, Inc. Distributors in principal industrial areas.

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NEW EQUIPMENT & SUPPLIES

Fourdrinier Stainless Steel Wire Is Successful

Culminating many years of development including four years of actual field testing, The W. S. Tyler

Co., has announced a type of fourdrinier paper machine wire, called TyFlex, made of stainless steel.

While it is well known that stainless steel has superior corrosion and abrasion resistance properties, two problems unique to paper machine application had to be overcome. First was developing a stainless steel wire which would permit the high speed flexing encountered on modern paper machines. The second was devising a method of seaming the wire cloth to form an endless belt, which would also withstand the corrosive and abrasive conditions encountered.

According to W. S. Tyler officials, both obstacles have been successfully solved with the new Ty-Flex wire on which U.S. and foreign patents are pending. Flexibility of the stainless steel cloth, which can be woven in plain, semi-twill, or full twill weave, is comparable to cloth made of bronze alloys.

Thus, the way is cleared for mills to realize the advantages of stainless steel wires. For example, one mill producing corrugating medium which formerly averaged only 5 days life with phosphor bronze wires, and 10 or 11 days life with plated wires, has obtained as much as 50 days service with the Ty-Flex wires. Equally impressive results have been realized by other mills which have participated in the field testing program, reports Tyler.

Tyler officials point out that such an increase in service life not only saves in replacement costs of the fourdrinier wire itself, but avoids tremendous downtime charges on the machine which may cost in many mills as much as 500 to 1,000 dollars an hour.

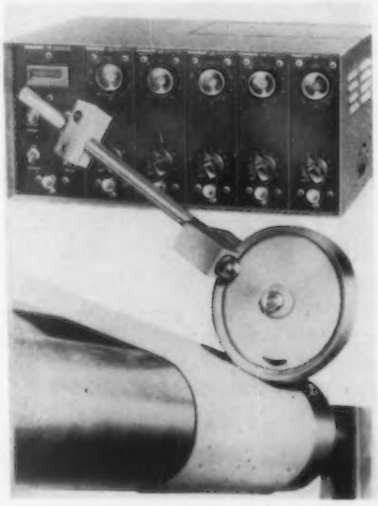
Another advantage has been reported by mills using the wire. The Ty-Flex wire maintains its drainage rate better than bronze, and has less tendency to dimple or dent. The Tyler wire is now being produced in regular meshes and wire diameters, which can be used on existing equipment without any modification. The W. S. Tyler Co., 3615 Superior Ave., Cleveland 14, Ohio.

Specialty Starch Offers Savings in Enzyme Conversion

Pearl Plus, a specialty starch for enzyme conversion is now available in commercial quantities from National Starch and Chemical Corp. A new method of treatment is utilized during its processing enhancing the enzyme convertibility of the starch and providing an end product of strength and viscosity stability. The treatment produces more rapid and uniform conversion. It is particularly designed to stabilize and fully utilize the molecular fraction of the cornstarch (amylose) so that a more stable viscosity is obtained and flow properties, filming characteristics and binding strength of the converted starch are improved, says National.

Laboratory tests and extended mill usage have demonstrated the following benefits which may be obtained with Pearl Plus:

1. Requires up to 40 per cent less enzyme to convert to a given viscosity than regular enzyme converting starches.
2. Can be converted at higher solids in order to increase coating solids when used as a binder, or to minimize the number of batch preparations needed per day.
3. Its ease of conversion can also permit more rapid conversion, in many cases eliminating the temperature holding cycle needed for suitable conversion, thereby reducing time and costs for batch preparations.
4. Coating pick strength has been increased 2-3 wax points above regular enzyme converted corn starches when converted to equal viscosities. Thus, the binder level may be reduced to yield equivalent pick strengths.
5. Pick strength factors can be obtained with 20-30 per cent less starch solids at the size press compared to regular enzyme converted cornstarch.
6. Equivalent surface properties and strength factors can be obtained at equal viscosity and solids compared to high quality preconverted starches, with subsequent cost savings.

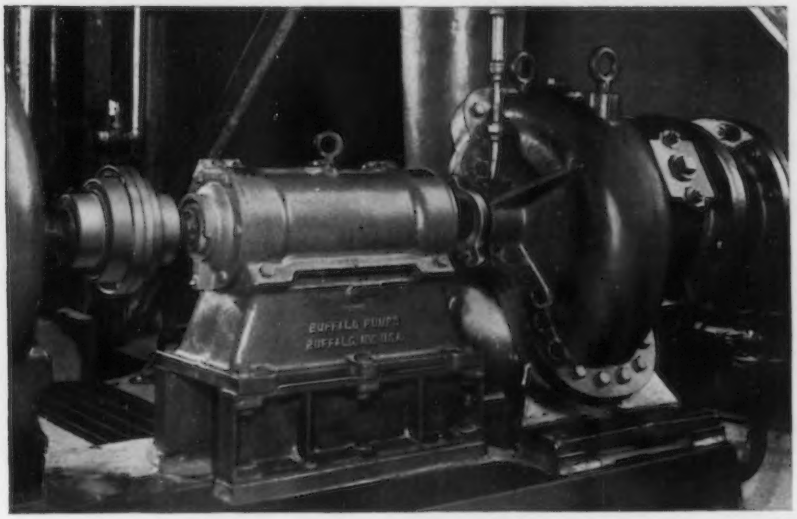


Lineal Measuring Device With Photo Electric Sensor

Standard Instrument Corp. of New York announces the availability of a lineal measuring device with photoelectric sensor. Labelled "Footage Counter," it is available in models for measurement and control in yards, feet, tenths of feet or inches.

Basic advantage in photo-electric measurement is elimination of load drag inherent in mechanical registers. The Standard Photo-Electric

PUSHING PAPER PRODUCTION



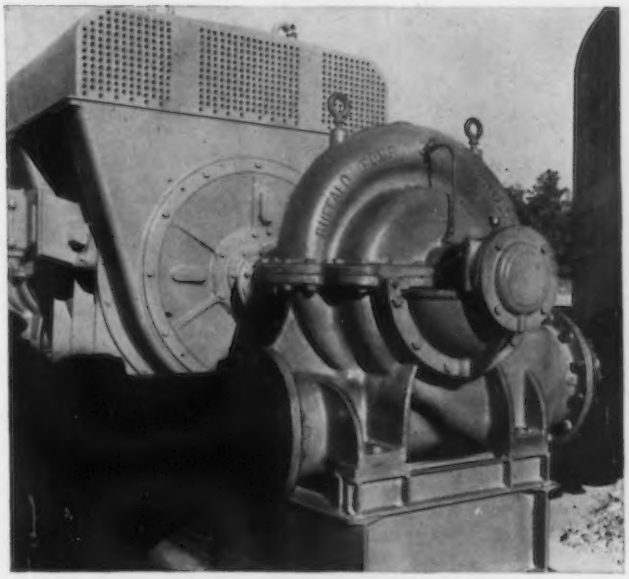
'BUFFALO' STOCK PUMPS

Handle high consistency stock without clogging. Keep production up, downtime down! All internal parts accessible without disconnecting piping. Full interchangeability of parts. Taper-bored impeller, heavy-duty water cooled bearing withstands severe loads. Request Bulletin 953.

WITH 'BUFFALO' PUMPS

'BUFFALO' DOUBLE SUCTION PUMPS

For high efficiency pumping of clear water, white water and liquor. Split casing for inspection of impeller without disconnecting piping. Horizontal or vertical construction. Motor or steam turbine drive. Capacities: to 18,000 gpm. Head: to 400 feet. Request Bulletin 955.



"Buffalo" PUMPS

BUFFALO PUMPS
Division of Buffalo Forge Co.
Buffalo, New York
Canada Pumps Ltd., Kitchener, Ontario

'Buffalo' Air Handling Equipment to move, heat, cool, dehumidify and clean air and other gases.

'Buffalo' Machine Tools to drill, punch, shear, bend, slit, notch and cope for production or plant maintenance.

'Buffalo' Centrifugal Pumps to handle most liquids and slurries under a variety of conditions.

Squier Machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.

Footage Counter also provides instanteous measuring, counting and recording operations. A measuring device is available with pre-set counters, capable of operating at high production speeds. Multiple, predetermined settings may be selected as desired for sequential operation. For example: In a 10,000 yard cycle actuated by a multi-preset counter, electronic circuits will, at 9,500 yards, sound a warning bell. At 9,900 yards, machine is slowed and then stopped accurately at the 10,000 yard poin.

In conjunction with other Standard Instrument counting, pre-counting and Tally-Print equipment, the Footage Counter will perform the following production measurement functions:

Cut off, marking, measurement (production), trigger preset sequence of cycles, (repetitively), provide permanent record of production vs elapsed time.

Models are available with magnetically actuated pickups for applications where large amounts of dust or lint interfere with sound photo-electric practice. Standard Instrument Corp., 657 Broadway, New York 12, N. Y.

Shreds Waste Cartons Prior to Baling Operation

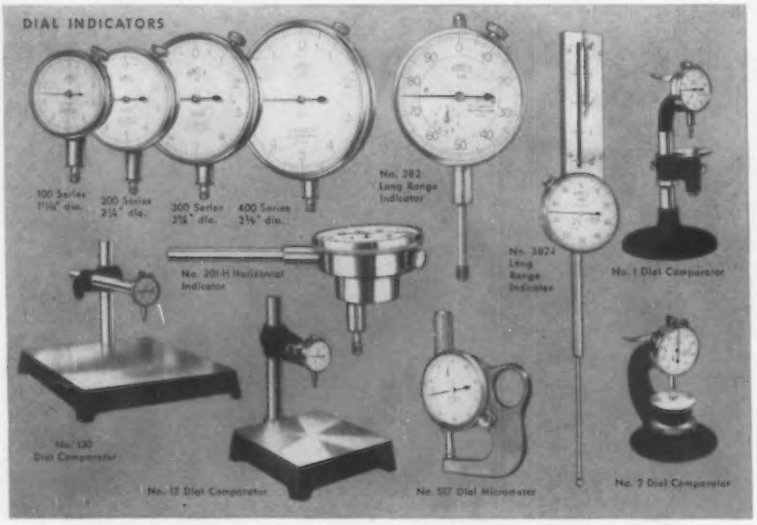
A paperboard carton shredder that is claimed to drastically reduce manpower and storage needs for handling discards and reject paperboard cartons and cases has been introduced

by Mitts & Merrill, Saginaw, Mich.

In automatic operations, the feed-off conveyor line can carry discards directly to the shredder where they are automatically chopped down to pieces from 4 to 12 inches in size depending upon customer desire. The shredder can also be hand fed. Force of the shredder blades propel these pieces out of the shredder where they can be fed directly, or through air-flow systems, to the bins that feed bailer.

The Mitts & Merrill shredder can be purchased separately or with baler in a complete engineering

AMES *Masters of Measurement*


DIAL INDICATORS
100 Series 1"/16" dia.
200 Series 2 1/4" dia.
300 Series 2 1/8" dia.
400 Series 3 1/8" dia.
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No. 201-H Horizontal Indicator
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Use Them for Checking: taper, height, depth, flatness, roundness, straightness, thickness, diameter, length and size.

Features Include: easy-to-read dials, unbreakable crystals, forged cases, backs and wheel support, contour-lapped pinion teeth.

Attachments: rubber and metal dust guards, long stem indicators, tolerance hands, lift levers, special backs, contact points, etc.

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MANUFACTURERS OF MICROMETER DIAL INDICATORS, DIAL GAUGES, ACCU-FLOW AIR GAGES, PORTABLE TRANSISTORIZED COMPARATORS

POLYETHYLENE TANK, designed for non-contaminating mixing and storage applications for a broad range of liquids, slurries and powders, is of one-piece molded construction with wall thicknesses of only 5/16th of an inch, yet is said to be self-supporting and non-distorting even when filled. The cover is fabricated polyethylene. Principal advantages of the colorless, translucent tank are easy cleaning, long service life, light weight, and complete resistance to most all concentrated acids. American Agile Corp., P.O. Box 168, Bedford, Ohio.

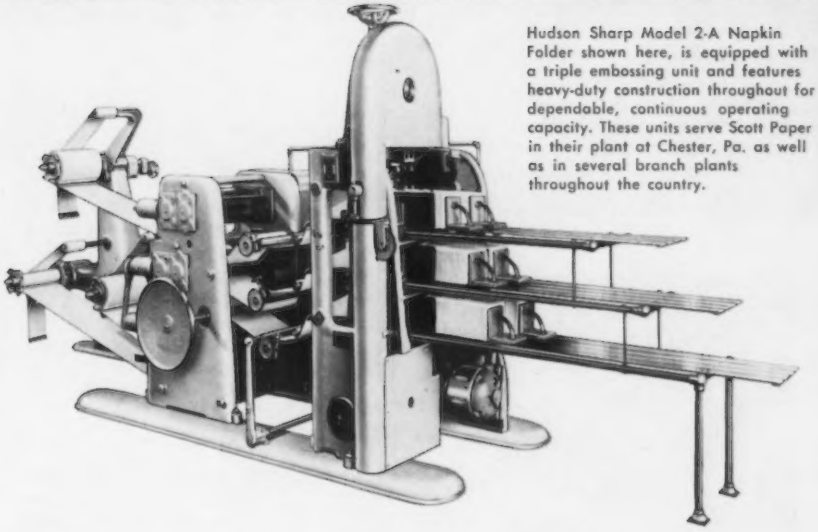
SCOTT PAPER COMPANY relies on FMC'S HUDSON SHARP equipment for high speed quality production of Scotkins

... Paper Table Napkins of Luxurious Linen-Like Quality

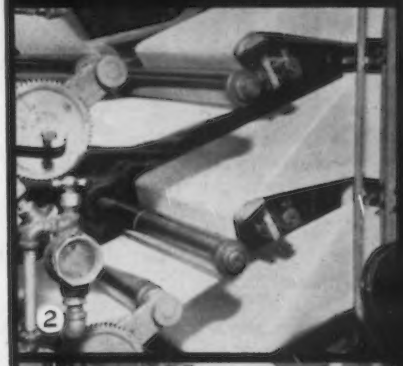
1 Production line of Hudson Sharp units shows "Scotkins" leaving folders for collating and delivery to automatic cartoning operations.

2 Three webs of "Scotkins" are processed simultaneously on Hudson Sharp Folders. Units handle both home and institutional type napkins.

3 Jumbo rolls of potential "Scotkins" stand ready for processing on Hudson Sharp's heavy-duty parent roll stands.



Hudson Sharp Model 2-A Napkin Folder shown here, is equipped with a triple embossing unit and features heavy-duty construction throughout for dependable, continuous operating capacity. These units serve Scott Paper in their plant at Chester, Pa. as well as in several branch plants throughout the country.



Helping to produce "Scotkins"—one of America's most popular, disposable, two-ply table napkins are a number of Hudson Sharp Napkin Folders. Rotary in operation, these machines process three parent rolls simultaneously and produce a minimum of 1500 embossed "Scotkins" per minute. Scott Paper Company also uses these same machines for producing institutional napkins which require an additional fold.

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION
FMC Packaging Machinery Division
Hudson-Sharp Machine Company
1201 MAIN STREET, GREEN BAY, WISCONSIN

system. The shredder was engineered to adapt to any present baler set up. Modifications can be made to handle any size carton or fit into existing handling procedures. Complete engineering information is available by writing Customer Engineering Service, Mitts & Merrill, Saginaw, Mich.

Potentiometer Adapts Strain Gauge as Rebalancing Element

An industrial process potentiometer described as "revolutionary" in concept has been introduced by

Brown Instruments Division of Minneapolis-Honeywell Regulator Co. Called the ElectroniK 17 and incorporating an electro-mechanical strain gauge as the rebalancing element, the device eliminates the conventional slidewire and provides infinite resolution for the first time in a potentiometer.

The potentiometer, which can be mounted in a standard 19-inch relay rack, on a panel or bench, or made portable, consists of a single pen strip and circular chart recorders and a circular scale indicator, each with or without control.

In addition to the rebalancing mechanism, known as the Stranducer, the ElectroniK 17 incorporates these features: Isolation of all critical components within an electrical shield, thus rejecting stray signals having 60-cycle r.m.s. values five times greater than span, and voltage to ground strays of 300-volts dc or 150-volts a.c.; One true reference junction compensation for all types of thermocouple actuation; Transistorized plug-in control units up to a maximum of eight set points for auxiliary or zone control.

In the Stranducer, four prestressed looped wire strands enclosed in an I-shape frame form the variable resistance legs of the measuring circuit. Their resistance varies in proportion to the tension applied to them. At zero position, the wires, fastened to the pivot arm of the Stranducer, are in equal tension and are of equal resistance. The pivot arm, as it rocks back and forth, increases tension on two of the wires and decreases it on the other two wires. The Stranducer reportedly does not have mechanical wear, limited resolution, and "bounce" which occurs in instruments operating at high speeds.

The input impedance of the ElectroniK 17 input circuit and voltage amplifier is in excess of 100,000 ohms. Two amplifiers, one solid state and the other with vacuum tubes and transistors are interchangeable with plug-in connections. Modular construction permits the measuring circuit to be changed for different ranges or actuations by substitution of range cards and actuation boards. The drawer-type chassis, with its wiring drawbridge, can be pulled out for instrument adjustment or service without disrupting operation.

Calibrated accuracy of the ElectroniK 17 is ¼ per cent. Strip chart instruments have pen speeds of 1, 5, and 15 seconds. Those for circular chart instruments are 5 and 15 seconds.

FLEX-LITE IMPACT PADS cushion the shock and reduce damage in handling unwieldy items: for instance, standing rolls of newsprint which have to be toppled and rolled. These pads are made of polyurethane foam, weigh approximately 35 lbs. with cover. Cover is fabricated of vinyl-coated Nylon, easily removable from pad. Size of pad shown is 30 by 45 inches. Bilt-Rite Mfg. Co., 1342 West 11th Street, Long Beach, Calif.

Immersion Heater Fits 55-Gal. Drums

An immersion-type drum warmer, designed for standard 55-gallon drums, has been announced by the Platecoil Division, Tranter Manufacturing, Inc., 735 East Hazel St., Lansing, Mich.

The immersion unit, designed for rapid heating of materials in 55-gallon drums, consists of a heat transfer unit, rolled to the proper diameter to fit the contour of the drum wall. It is available in either serpentine or header construction, with inlet and outlet connections outside of the drum.

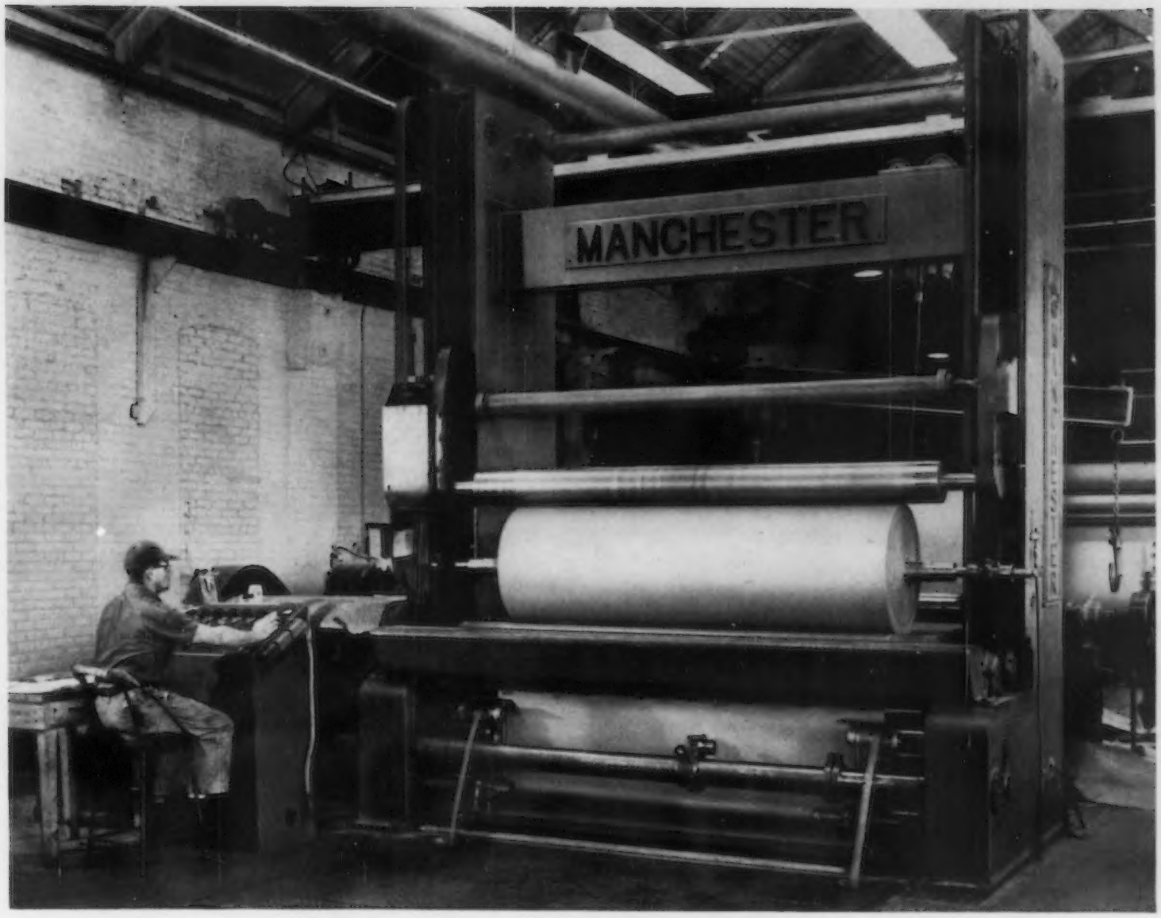
Although the unit will be available in six different sizes, the 22 x 29 inch mild steel size only will be carried as a stock item, with the others available on request.

White Polyethylene Reduces Screenpack

Monsanto Chemical Co., Springfield, Mass., has introduced a 45 per cent concentrate white polyethylene which can be blended with any of the company's polyethylene extrusion and film resins to suit specific end use requirements.

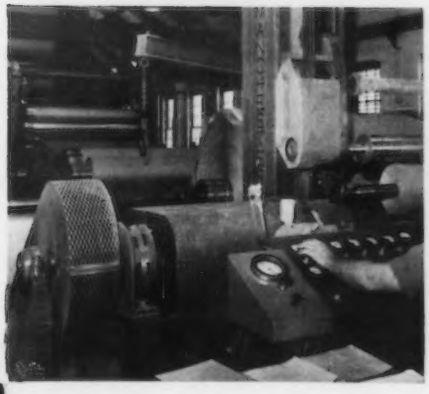
Designated Monsanto polyethylene 6407, the concentrate is compounded with Monsanto polyethylene 70 and a rutile titanium dioxide pigment which is said to reduce materially screenpack and non-uniform pigment feed.

For any concentration below 45 per cent, the concentrate can be blended in standard dry tumbling equipment or preblenders with the right amounts of any other Monsanto polyethylene resin. This mechanical mixture can be fed directly into the extruder. It is used for pack-



Here's another profit-making installation

by MANCHESTER MACHINE COMPANY



Smooth, tight rolls every time—low maintenance—trouble-free operation—these are the things that add to paper mill profits. Pictured above is a Manchester winder in operation at a well-known Michigan mill. This was a *repeat order* placed less than six months after installation of their first Manchester winder.

Designed to accommodate 84-inch diameter rolls, this rugged all-steel machine room winder is turning in profit-making performance day after day.

See what Manchester can do for you before you order another winder. THE MANCHESTER MACHINE COMPANY, MIDDLETOWN, OHIO.

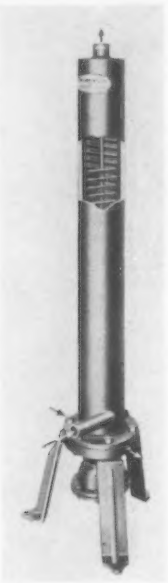
MMC

Manchester Builds Profits for Papermakers

ages where visibility is not needed and to upgrade such substrata as kraft board and paper.

After-Cooler Benefits Small Compressed Air Systems

The Murphy A4VC Aftercooler is easy to install, has no moving parts, and requires practically no maintenance, claims its manufacturer. It is designed especially for the small to medium sized user of compressed air who hereto had no convenient remedy for "hot air" in his system. Built for capacities of 50 to 120 cubic feet of free air per minute, the aftercooler comes in lengths from 40⅜ to 95¼ inches overall and the cooling chamber is only 4½ inches in diameter.



It features a non-corrosive copper coil through which the valve regulated cooling water flows. Coil is attached to the flanged head with flared connections and supported throughout its length by spaced baffle plates which direct the flow of air for utmost contact with the cooling coil. Separated moisture descends by gravity to the Murphy Ball Float Trap below where it is ejected automatically and without loss of air. Flanged head and coil may easily be removed as a unit.

Manufacturer guarantees that this unit will cool air to within 85 per cent of the cooling water temperature. The unit also is offered with optional automatic cooling water shut-off and in a horizontal design which fits into overhead lines. Write Jas. A. Murphy & Co., Inc., 1421 East High Street, Hamilton, Ohio.

(Continued on page 54)

Prices of Fibers

MARKET WOOD PULP

FIRST QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	$90.00/ —	$90.00/ —	$90.00/ —
Bleached Gw'd.	97.50/100.00	97.50/100.00			
Kraft, Blchd.	‡140.00/150.00	‡140.00/150.00	150.00/ —	150.00/ —	150.00/ —
Kraft, Blchd. Hdwd.	135.00/140.00		140.00/ —		
Kraft, Semi-bleached.	130.00/140.00				
Kraft, Unbl.	117.50/125.00	125.00/ —	125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡135.00/140.00	‡135.00/140.00	140.00/ —	140.00/ —	140.00/ —
Sulphite, Bl. Hdwd.	135.00/ —				
Sulphite, Unblchd.	125.00/ —	125.00/ —	125.00/ —	125.00/ —	125.00/ —
Sulphite, Unb'l. Gl'sn.		140.00/ —	134.00/ —		
Soda, Blchd.	130.00/135.00	130.00/135.00			

‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS

WEEK ENDED FEBRUARY 7

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	n.a.	8.00/7.50
3	$7.00/6.50	$7.50/7.25	$7.50/7.00	7.25/6.75
4	6.50/5.75	6.50/6.25	6.50/6.25	6.50/6.25
5	5.75/5.25	5.75/5.50	6.00/5.50	— /6.00
6	5.25/4.25	5.00/4.75	5.25/5.00	— /6.00
7	4.25/3.50	4.25/4.00	4.75/4.00	n.a.

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Feb. 13	Feb. 13	Feb.	Feb.
No. 1 Mixed Paper	$ 7.00/ 9.00	4.00/ 7.00	6.00	12.00/ —
No. 1 News	12.00/ 13.00	11.00/ —	11.00/ —	13.00/ 14.00
Overissue News (Lg. size)	11.00/ 13.00	9.00/ 11.00	16.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	9.00/ 11.00	9.00	13.00/ —
Old Corrugated Containers	19.00/ 20.00	17.50/ 18.00	18.00/ —	17.00/ —
Super Resorted Kraft Paper	35.00/ 40.00		28.00/ —	50.00/ —
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	30.00/ 32.50	30.00/ —	27.50/ —
(Semi-chem. medium)	15.00/ —	45.00/ —	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	52.50/ —	— / —
New Br. Kraft, Env. Cuts	65.00/ 70.00	65.00/ 70.00	47.50/ —	45.00/ —
New Br. Kr. Bag Waste Prntd.	50.00/ 55.00	50.00/ 60.00	47.50/ —	35.00/ —
New Br. Kr. Bag Waste Unprintd.	55.00/ 60.00	60.00/ 65.00	55.00/ —	42.50/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	20.00/ 25.00	10.00/ —	30.00/ —
White Newsblanks	42.50/ 45.00	47.50/ 52.50	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	55.00/ 60.00	50.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	70.00/ 80.00	60.00/ —	— / —
Hd. White Shvs.	75.00/ 80.00	80.00/ 90.00	75.00/ —	80.00/ —
Hd. White Env. Cuts	90.00/ 95.00	100.00/105.00	80.00/ —	103.00/ —
Col. Tab. Cards	40.00/ 42.50	40.00/ 42.50	35.00/ —	35.00/ —
Manila Tab. Cards	57.50/ 60.00	57.50/ 60.00	55.00/ —	60.00/ —
No. 1 Col. Ledger	32.50/ 35.00	30.00/ 35.00	35.00/ —	18.00/ —
White Ledger	45.00/ 50.00	42.00/ 47.00	45.00/ —	40.00/ —
Mixed Book & Mag.†	—	—	8.00/ —	— / —
No. 1 Books‡	15.00/ 17.50	18.00/ 22.00	22.50/ —	14.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

Everett C. Reed, executive of Albany Felt Company, holds synthetic fibers against a background of varied styles of chemically treated, synthetic-content, paper machine felts.

How much is enough?

Knowing the *right* proportion of synthetic fiber to wool, for example, cannot be guesswork.

When you ask us to design and manufacture a felt, these questions must be answered and answered correctly: What do you want from a felt? What performance do you seek?

As a result of long experience in selecting and blending synthetics and wools, and after thorough study of results with thousands of synthetic-content felts in actual performances . . . Albany Felt, the pioneer in developing synthetic-content felts (we hold the original patent) can assure you of the highest skill in designing and building felts to fill your specific needs.

This means improved felt performance on your machine.

Today over 60% of our felts contain synthetic fibers . . . and we are the world's largest manufacturer of paper machine felts.

ALBANY FELT COMPANY
ALBANY, N.Y.

AF

Dedicated to Paper Industry Progress

N. Monmouth, Maine Hoosick Falls, N. Y. St. Stephen, S. C.
Cowansville, Quebec Cuautitlan, Mexico

TALK SYNTHETICS WITH YOUR ALBANY FELT SALES ENGINEER ▶

The *facts* about SYNTHETIC-CONTENT *felts*

The most satisfactory synthetic fibers used in felts are Nylon and Dacron. The proper synthetic, carefully blended in the right amounts with the right wools and in the proper felt design, results in a felt that gives longer life and improved performance.

Albany Felt Company's long experience in synthetic-content felt manufacture has proved these facts:

- The percentage of synthetic fiber used in a specific type of felt varies with the individual paper or paperboard application involved. (Generally, the proportion is from 10% to 45%.)
- The amount of synthetic fiber recommended rises in proportion to the extent of punishment which the felt must endure.
- The percentage of synthetic fiber in a felt is not the sole answer to better-performing felts—the careful selection and blending of synthetics and wool, plus the right felt design are also most important.
- The careful and knowing selection of the proper chemical treatment, in conjunction with synthetics, often assures longer felt life, improved finish and performance.

MOST IMPORTANT FACT OF ALL . . .

When the "rights" are added together—the *right* design, the *right* fibers, and the *right* blending—the felt will be *right* for your requirements.

TALK SYNTHETICS WITH YOUR ALBANY FELT SALES ENGINEER

ALBANY FELT COMPANY
ALBANY, N.Y.

AF

Dedicated to Paper Industry Progress

N. Monmouth, Maine Hoosick Falls, N. Y. St. Stephen, S. C.
Cowansville, Quebec Cuautitlan, Mexico

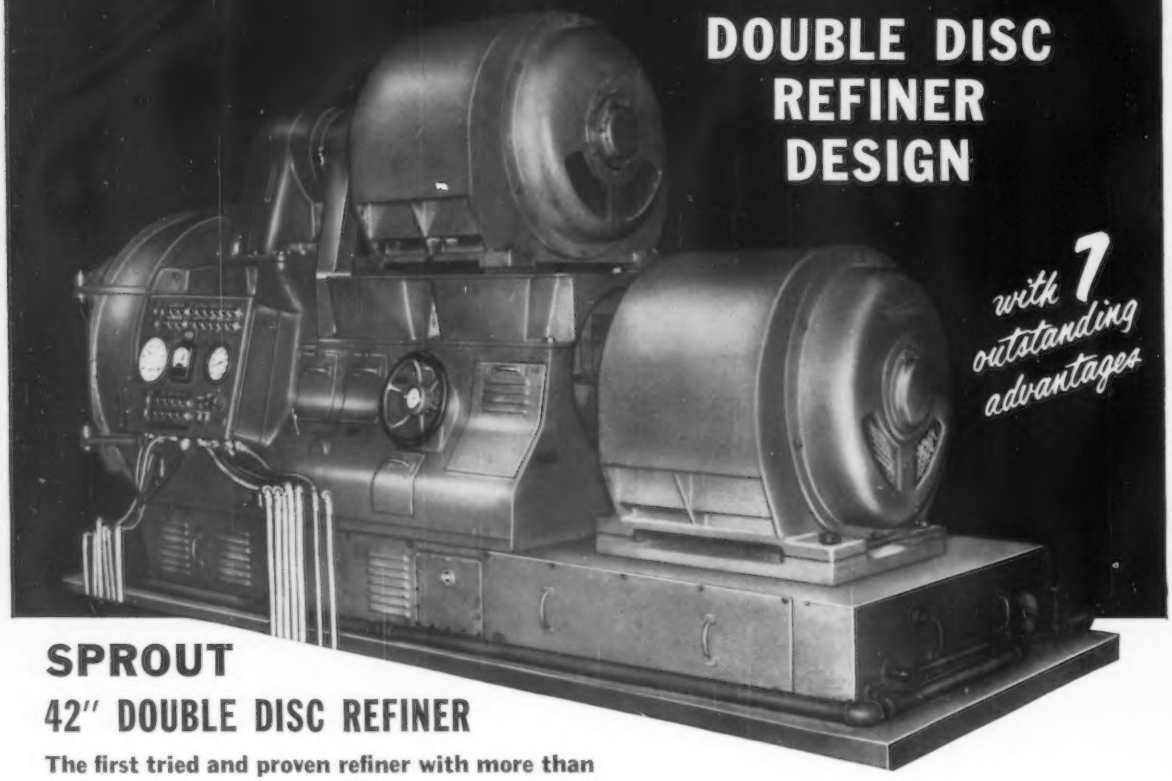
you can help prevent forest fires

Weyerhaeuser Company

Pulp and Paperboard Division

AN ENTIRELY NEW CONCEPT IN DOUBLE DISC REFINER DESIGN

with 7 outstanding advantages



SPROUT
42″ DOUBLE DISC REFINER

The first tried and proven refiner with more than 1000 horsepower . . . up to 3000 horsepower available

1 UNIFORM MOTOR LOADING—There are no spokes through which the feed stock has to pass to reach the refining area, assuring efficient, fully effective use of the connected motor power.

2 STANDARD DIRECT COUPLED MOTORS—This means improved maintenance. The two motors are identical.

3 SHORT CONCENTRIC THRUST PATH—The refining thrust does not pass through the base. Any out-of-parallel condition of the disc faces due to frame deflection (apparent with conventional double disc refiners with integrally built motors) is eliminated.

4 HYDRAULIC PLATE POSITIONING—Disc refining pressures can be readily adjusted to the amount required for best quality and top production to suit the application.

5 PERFECT MACHINE ALIGNMENT—The refiner design permits line-boring of the housing for all rotating parts, insuring the most perfect alignment known to date.

6 AUTOMATIC REFINER ADJUSTMENT—Once the plate gap is set, hydraulic controls take over to maintain automatic control. The refiner controls may be installed in a central control console if desired.

7 EASY PLATE CHANGING—Like the famous single disc Sprout, this new double disc refiner is provided with a swingdoor which insures complete accessibility for plate changing.

Sprout-Waldron offers the best in double disc refining performance, designed especially for the pulp and paper industry. Unrestricted feed to the discs—identical to the method used with the Sprout single disc refiners—makes for full utilization of the connected horsepower. Standard direct coupled motors and rugged construction with horsepower to 3000 are available.

Write for Bulletin 231

SPROUT, WALDRON & CO., INC.

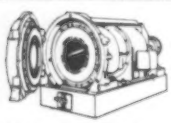
MUNCY, PENNSYLVANIA, U. S. A.

Refiners • Conveyors • Feeders • Screens • Mixers • Drainers • Fibre Presses • Stock Proportioners

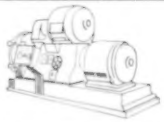
608

SW SINCE 1866

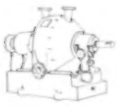
MORE SPROUT DISC REFINERS ARE SOLD THAN ANY OTHER MAKE



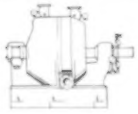
36-1 • REFINERS • 36-2

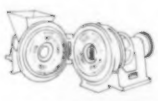


DOUBLE DISC REFINERS



20″-34″ • PRESSURIZED REFINERS • 42″





LABORATORY REFINERS

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures
(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Jan. 7	Jan. 14	Jan. 21	Jan. 28	Feb. 4
1961	82.0r	90.4	89.1r	89.9r	91.4
	Jan. 9	Jan. 16	Jan. 23	Jan. 30	Feb. 6
1960	95.4	97.4	96.9	96.3	97.8

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.1	96.9	97.6	96.1	81.2	91.7	89.1	94.8	92.0	80.2	92.7
1961	87.8												

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1954	1955	1956	1957	1958	1959	1960	1961
Year to Date	94.0	94.1	99.4	94.6	86.9	88.2	96.8	88.3
Year Average	91.6	96.2	97.9	90.4	87.0	92.2	92.8	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Jan. 7	Jan. 14	Jan. 21	Jan. 28	Feb. 4
1961	77	92	90	90	90
	Jan. 1-9	Jan. 16	Jan. 23	Jan. 30	Feb. 6
1960	80	97	95	97	96

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	78	94	88	93	86	73	89
1961	88												

‡ Preliminary.
† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	WEEK ENDING Feb. 8, 1961	WEEK ENDING Jan. 28, 1961	CUMULATIVE TO DATE Jan. 1, 1961 to Feb. 4, 1961
% Activity	90%	90%	88%
Total	313,152	313,805	1,413,449
Containerboard—Domestic Use	161,020	155,399	701,658
Liner	108,115	104,520	467,725
Corrugating Material	48,243	46,442	213,470
Chip & Filler Board	4,662	4,437	20,463
Boxboard—Domestic Use	94,702	102,316	45,208
Folding	56,577	59,356	265,499
Set-Up	9,234	9,995	45,584
Special Food Board	28,891	32,965	141,002
Other Paperboard	57,430	56,090	259,711
Containerboard Type	25,302	27,694	122,711
Boxboard Type	32,128	28,396	137,000
Total Orders			
Received	333,754	302,344	
Unfilled End of Week	408,538	380,337	

Couplings In Service 39 Years Believed A Record

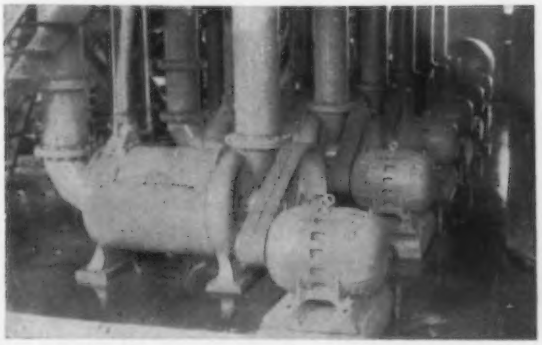
What may be the oldest industrial couplings still in operation were discovered recently when the Metal Products Division of Koppers Co., Inc., Baltimore, Md., received a routine request. West Virginia Pulp & Paper Co.'s plant at Tyrone, Pa., wrote to Koppers inquiring about a replacement for a Fast's coupling installed in July 1922.

Since the Bartlett Hayward Co., which was later acquired by Koppers, first started to manufacture Fast's couplings in 1920, it was recognized that this must have been one of the earliest applications. On closer inspection of old records, Koppers' found that several Fast's couplings were actually installed on paper machines at Tyrone in June, 1921.

A few of the first couplings are still in service after 39 years of almost continuous operation. They were made from cast iron where for many years, of course, similar couplings have been made of forged steel. Moreover, the selling price of the same type of couplings is less than it was nearly 40 years ago.

CHAS. T. MAIN, INC.
ENGINEERS
PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION
PULP AND PAPER MILLS
STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING
REPORTS, CONSULTATION, VALUATIONS
●
BOSTON, MASSACHUSETTS
CHARLOTTE, NORTH CAROLINA

PAPER TRADE JOURNAL is always mailed on Friday at East Stroudsburg, Pa. If you feel that there is undue delay in receiving your copies we suggest that you write to your local postmaster with a copy to S. E. Marsh, assistant postmaster at East Stroudsburg. If you will also send a copy of your complaint to us this will keep us posted on areas of poor service.



SAVE WITH APMEWS

- Replace flat screens with APMEW centrifugal swirling fibre cleaner screens, 20 to 1
- Occupy 90% less space
- Use less H.P.
- Produce cleaner, stronger, more salable paper

CONTACT
APMEW, Inc., P. O. Box 1, Glens Falls, N. Y.

Your nearby Sonoco core specialist offers personalized service...

Here's qualified assistance with your core problems from men who represent a company with over 60 years' experience in the field. They are located in each of SONOCO's coast to coast plants.

• SONOCO experience is coupled with research, and the result is found in the high quality and dependable service of the cores produced today. SONOCO cores are made to exacting torque and crush strength specifications in a completely integrated manufacturing operation. Quality is rigidly controlled from start to finish. Non-returnable cores; in all sizes. Returnable cores, with or without famous SONOCO metal ends, are made in all standard sizes. SONOCO can also supply a complete line of metal end core machinery and core cutters.

Regardless of your core needs, you'll get more for your core dollar from SONOCO in service, quality and economy. Call or write today!

SONOCO
Paper Mill Cores
SONOCO PRODUCTS COMPANY

SONOCO PRODUCTS COMPANY, HARTSVILLE, SOUTH CAROLINA • Mystic, Conn. • Akron, Ind. • Lowell, Mass. • Holyoke, Mass. • Phillipsburg, N. J. • Longview, Texas • Philadelphia, Pa. • La Puente, Calif. • Freemont, Calif. • Atlanta, Ga. • Richmond, Va. • Ravenna, Ohio • Brantford, Ontario • Granby, Quebec • Mexico City

A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU

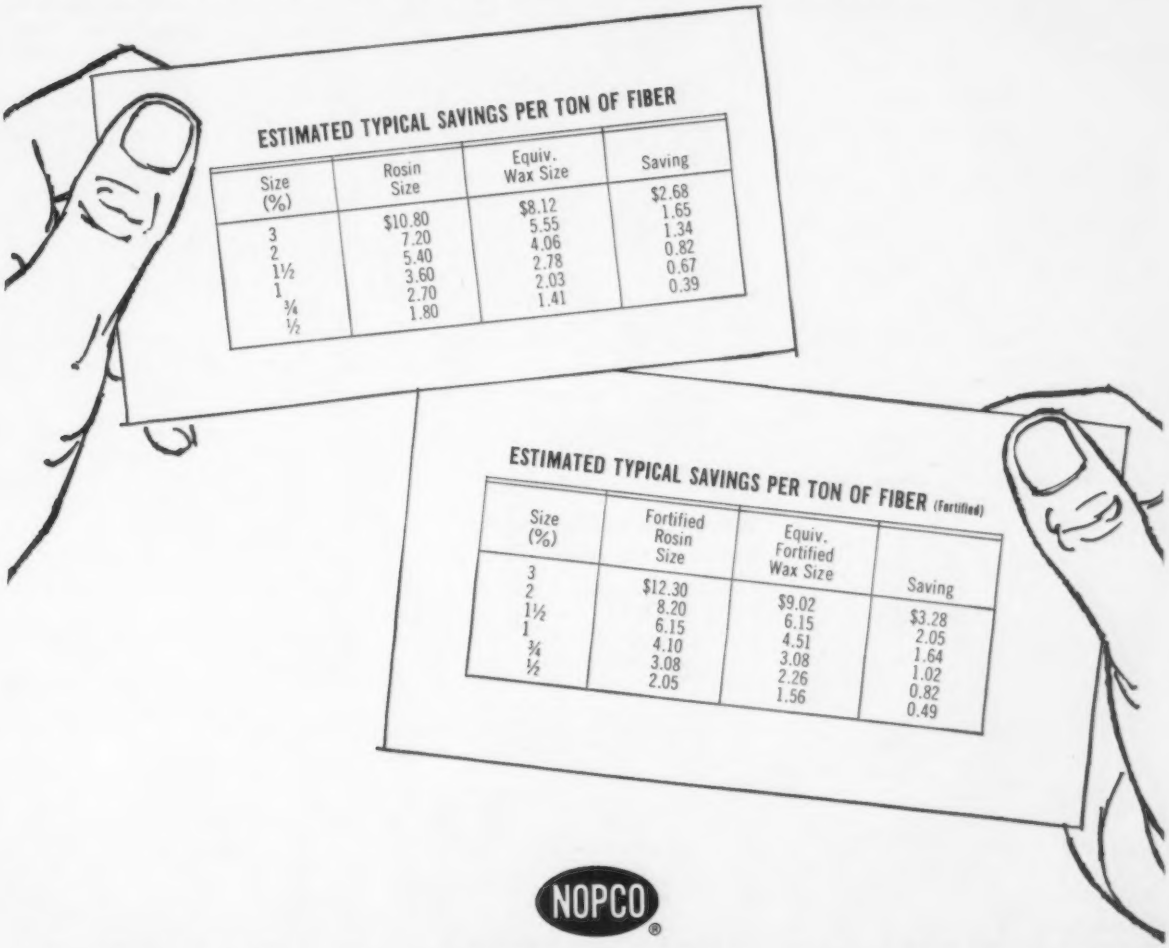
Are your rosin size costs too high?

Nopco® Wax Sizes do more—cost less

Whether your mill uses rosin or fortified-rosin sizes, Nopco can show you how to reduce your sizing costs by using its wax sizes. In addition to saving you money, Nopco Wax Sizes impart improved resistance toward water, ink, lactic acid, alkalis and blood; improve gloss, smoothness and printability; and decreases fuzz, curl and brittleness.

Use of Nopco Wax Sizes in your mill is an advantage you cannot afford to overlook. Let us help you set up a program of tests and trial runs to prove it to your own satisfaction.

Our Technical Service Engineers, utilizing over 30 years' experience with wax sizes, are ready to show you the advantages to be gained by the use of wax sizes in conjunction with rosin sizes. Write today for further information.


ESTIMATED TYPICAL SAVINGS PER TON OF FIBER
Size (%) | Rosin Size | Equiv. Wax Size | Saving
3 | $10.80 | $8.12 | $2.68
2 | 7.20 | 5.55 | 1.65
1½ | 5.40 | 4.06 | 1.34
1 | 3.60 | 2.78 | 0.82
¾ | 2.70 | 2.03 | 0.67
½ | 1.80 | 1.41 | 0.39
ESTIMATED TYPICAL SAVINGS PER TON OF FIBER (Fortified)
Size (%) | Fortified Rosin Size | Equiv. Fortified Wax Size | Saving
3 | $12.30 | $9.02 | $3.28
2 | 8.20 | 6.15 | 2.05
1½ | 6.15 | 4.51 | 1.64
1 | 4.10 | 3.08 | 1.02
¾ | 3.08 | 2.26 | 0.82
½ | 2.05 | 1.56 | 0.49

NOPCO®

NOPCO CHEMICAL COMPANY

60 Park Place, Newark, New Jersey

Plants: Harrison, N.J. • Carlstadt, N.J. • Richmond, Calif. • Cedartown, Ga. • London, Canada • Mexico, D.F. • Corbeil, France

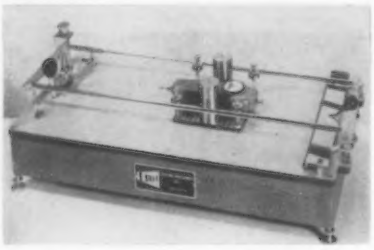
Manufacturing Licensees Throughout the World

NEW EQUIPMENT

(Continued from page 50)

Determines Both Static And Dynamic Friction

The TMI slip & friction tester is constructed with constant speed drive and dead weight platen pressure. The



moving platen shown in the center of the photograph, has a force gauge mounted on it. The force gauge registers the maximum force for determining the static (starting) friction. Or the force gauge converts to the continuously indicating type so that readings can be taken over the entire surface of the material being tested and averaged out to obtain the dynamic or sliding friction.

Depending upon the characteristics of the material being tested, the small center platen can be used by itself, or it can be attached to a larger platen for use on larger samples. Sixteen additional ½ pound weights are included so that the platen weights can be increased as desired. For complete information write to Testing Machines Inc., 72 Jericho Turnpike, Mineola, N. Y.

MAJESTIC JORDAN, according to its manufacturer, the E. D. Jones Corp., Pittsfield, Mass., will process the widest possible variety of stock—from fine grades to rough board. Depending on the type of stock being processed, and its ultimate use, Majestic Jordan refining capacity varies from 100 to 250 tons per day. The Majestic employs the integral Adapta-Plug, shaft, and Accru-Set Control assembly, removable as a unit for easier maintenance.

Strapping Seal Uses Mastic Compound Provide Joint

The Microgrip seal represents an entirely different approach to strap sealing, reports Signode Steel Strapping Co., Chicago, its developer. The secret of the seal's joint strength lies in a special high friction mastic compound which coats the inside surface in the area within which the crimping action occurs. When the crimps are applied, the mastic compound "bites through" slippery strap coating to provide a strong frictional bond between the metal surfaces.

The seal combines high joint strength with high impact resistance, and permits the sealing to be done with a minimum of effort. Its use will be confined, for the present, to painted, painted and waxed, or waxed strapping in 1¼ inch widths. Microgrip seals are not recommended for dry strapping as the regular seals provide higher joint strength here.

Signode has two types of Microgrip seals available —the 114G and the 107G. Both are 22 gauge. The 114G seal is 2¼-inches long and may be used with either a B-1435 or UB-1435-50 sealer. The greater length of the 107G, 2-15/16-inches, enables it to be used with the N-1435 pneumatic sealer as well as with the two hand-powered models. The 114G will be considered the standard Microgrip seal and is, in fact, already being widely used in the "Kaylock" method of carloading paper rolls on end. Signode Steel Strapping Co., 2600 North Western Ave., Chicago 47, Ill.

Yellow Dye Economical For Lower Grade Bonds, Tablets

A direct dye for producing bright yellow shades on paper, Stilbene Yellow 10 GP, is announced by General Aniline & Film Corp., New York, N. Y. Available through the manufacturer's General Dyestuff Co. Division, the product has color interest for makers of bond, register, tablet and other paper grades.

Stilbene Yellow 10 GP is claimed to yield a bright greenish yellow of high tinctorial value for economical dyeing of a variety of sized papers. It is used principally in dyeing canary and green shades in customary pastel to medium depths.

Highlighted by good buildup on sized papers, the dye's working properties are satisfactory in running self or combination shades. Light fastness of the color is comparable to that of other Stilbene Yellows.

The dye is best applied in the beater to bleached chemical pulp. Dyeing of sized stock follows conventional methods in either batch or continuous application. In batch dyeing the color can be added dry without causing specking. The product is a fine non-dusting powder.

Additional information on Stilbene Yellow 10 GP, concerning the dye's shade, working properties, fastness and uses, may be obtained from General Dyestuff Co., a Division of General Aniline & Film Corporation, 435 Hudson Street, New York 14, N. Y.

Demineralizer With Replaceable Cartridge

Barnstead Still and Sterilizer Co., has developed a replacement cartridge demineralizer with capacity of 25 gallons per hour. This BD-5 consists of a pressure-type cartridge holder equipped with a direct reading purity meter calibrated in parts per million

impurities and ohms electrical resistance. The meter indicates water purity at all times and also shows when to replace cartridge.

The BD-5 can be operated under pressure up to 100 pounds per square inch. Cartridge holder is constructed of steel, lined with polyvinyl chloride while demineralizer head is faced with tin. Occupies space of only six x eight x twenty-six inches.

Standard cartridge with capacity of 1,500 grains removal as NaCl with endpoint of 50,000 ohms or higher can be used in the BD-5. For operations demanding higher purity, i.e.: one million ohms electrical resistance and a neutral pH, the mixed-bed cartridge is recommended by the manufacturer. Barnstead Still and Sterilizer Co., 136 Lanesville Terrace, Boston 31, Mass.

PJT NEWS OF SUPPLIERS

M. A. Freytag

P. L. Courtney

A. S. Hayeslip

W. G. McClure

Draper Brothers Co., Canton, Mass., manufacturer of Draper Felt, announces the appointment of Melvin A. Freytag as service representative covering the mills in the Midwest area.

Mr. Freytag is a graduate of Syracuse University, and has for the past three years been associated with Sealright-Oswego Corp. in the capacity of maintenance engineer.

J. M. Huber Corp., which mines and processes kaolin clays in South Carolina and Georgia has named Philip L. Courtney vice president in charge of the Clay Division. He succeeds Wilbur J. Driver, who retired February 1 after 34 years with the company.

Charles H. Marvin, Jr., manager of the South Carolina operations, was named assistant vice president, and Frank M. Gribble was appointed general manager of the Georgia operations.

Simultaneous with these appointments, Mr. Huber announced that the headquarters of the Clay Division have been transferred from Langley, S. C., to Huber, Ga., which is located in Twiggs County on the outskirts of Macon.

American Cyanamid Co., has opened a new pigments sales office in Kansas City, Mo., at 6100 East 60th Street. Alan W. Popp formerly sales representative in the St. Louis office has been transferred to Kansas City to head this office.

Other Cyanamid pigment sales offices are located in Chicago, Minneapolis and St. Louis. Products sold by Cyanamid's Pigments Division include Unitane titanium dioxide and a full line of inorganic and organic pigments.

Huyck Felt Co., announces that Arthur S. Hayeslip, vice president—sales, has retired after more than 41 years service. During this time he served as head of the production planning department, sales manager and in other supervisory capacities. He has traveled to paper mills throughout the United States and is widely known in the paper industry.

Under Mr. Hayeslip's direction, the nationwide Huyck sales organization has expanded to meet better the needs of the paper industry. To him belongs much of the credit for the continuing increase in the many valuable Huyck services offered papermakers.

Also announced by Huyck is the appointment of William G. McClure as felt sales engineer for New Hampshire, Vermont and northeastern New York. Prior to this appointment, Mr. McClure served as field assistant to the sales manager.

Mr. McClure, who resides in Delmar, N. Y., is a graduate industrial engineer from Lafayette College. He has had several years' experience as a Huyck field service engineer.

Nichols Engineering & Research Corp. is now handling the sales of the Seila Supraton, ultra sonic fibre dispersion unit, in the U. S., except for seven West Coast area states, covered by Pacific Supraton, Inc., San Francisco, Calif.

The Supraton affords complete dispersal of fibers in furnishes of dried pulp, waste papers, machine broke, including wet strength and de-inked stocks, without cutting or hydration. Low power requirements and fast treatment reduces power costs and increases pulping capacity in capacity ranges of 1,500-4,000 lbs. per hour at 2 to 8 per cent consistencies.

The stuff, passing through the chambers formed by the specially designed grooves on the rotor and stator, is alternately compressed and

"You've been misinformed! We're book paper makers—not bookmakers!"

decompressed more than 10,000 times per second as the volume of each chamber is decreased and increased by the turning of the rotor. Fiber bundles are loosened and shaken apart by the near ultra sonic vibration and they are finally dispersed by the high turbulence generated within the machine.

New Jersey Zinc Co., New York, N. Y., has appointed Donald A. Brown sales representative for Tennessee, Alabama, Mississippi and Louisiana.

Mr. Brown will make his home in Birmingham and report to the Southern district office in Atlanta. His appointment is another step by the company to provide improved service to its customers in the South.

D. A. Brown

Bo Rosen

Black-Clawson Co., manufacturer of pulp and paper mill equipment, has expanded sales service to the mills of Sweden with the formation of Black-Clawson (Sweden) A.B.

The new company will conduct sales and technical service in Sweden of all Black-Clawson equipment manufactured by the American and British plants of the company and of certain Black-Clawson products manufactured under license by Oy Tampella, A. B., Tammerfors, Finland.

Bo Rosen is appointed manager of Black-Clawson (Sweden), with headquarters at Sveavagen 21, Stockholm. A graduate engineer and former research chemist, Mr. Rosen has held executive positions in production, technical service, and sales for pulp companies in Finland and Sweden. Most recently he has served as sales manager and technical manager for A.B. Ramens Patenter, Stockholm, and has traveled widely to the pulp and paper mills in Sweden and other European countries.

Warren Pumps, Inc., Warren, Mass., has appointed Paul L. Armstrong industrial sales representative for Southern California, Arizona and Clark County in Nevada. The Armstrong firm is located at 1709 West Eighth Street, Los Angeles.

S. A. Bunis

R. J. Casey

C. A. Raby

S. V. Olson

Goulds Pumps, Inc., Seneca Falls, N. Y., has named S. A. Bunis sales manager. Associated with the company for 23 years, he has held the position of assistant sales manager for the past four years. Prior to coming to the headquarters office in 1953 he travelled extensively as a sales representative in the New England and Middle Atlantic territories.

J. M. Huber Corp., New York, has moved national sales headquarters for its paper clays and pigments to the Irving Zuelke Building, Appleton, Wis.

Robert J. Casey, divisional manager, is now located in the new office along with Karl T. Manthey, district sales representative. Claude A. Raby, assistant divisional manager, will continue to have his offices at 630 Third Avenue, New York 17.

Mr. Casey joined Huber in 1950 and served as technical sales representative and assistant divisional manager. Previously he was with American Coating Mills and Hercules Powder Co. in various technical capacities. He is a graduate of the New York State College of Forestry at Syracuse University.

Mr. Raby joined Huber in 1949 and served as technical sales representative. From 1952 to 1956, he headed the Huber office in Chicago, and later transferred to New York. He came to Huber from Nashua Gummed and Coated Paper Co.

"Developed a paper that can be used over and over again! What're you trying to do, put all of us out of work?"

R. L. Kutter

O. F. Hutchinson

Hobbs Manufacturing Co., Worcester, Mass., has announced the promotion of Sherman V. Olson to the position of sales engineer. Mr. Olson, who has been associated with Hobbs for the past 15 months, will represent the Worcester manufacturer of winding equipment in the Ohio area, and will make his headquarters at the Hobbs branch office in Ohio.

Beloit Iron Works, Beloit, Wis., has announced the appointment of Rudi L. Kutter as vice president, export sales. Mr. Kutter's most recent position was that of export sales manager, Beloit Iron Works.

Peter Cooper Corporations, manufacturer of animal glues, sizing gelatines and specialty products for papermaking, have named Orton F. Hutchinson, manager of sales to the paper industry in the United States and Canada. His headquarters will be at the main offices in Gowanda, N. Y.

Indiana General Corp., Milwaukee, Wis., has appointed Harold W. Buus general manager of its Stearns Magnetic Products Division. Mr. Buus has been with Stearns since 1941.

SO_2

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Purity is important—Our basic position enables us to control the purity of our chemicals from the raw materials we mine to the finished products we deliver to our customers.

We offer the Pulp Industry a dependable source of highest purity Sulfur Dioxide.

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NEW and Better!

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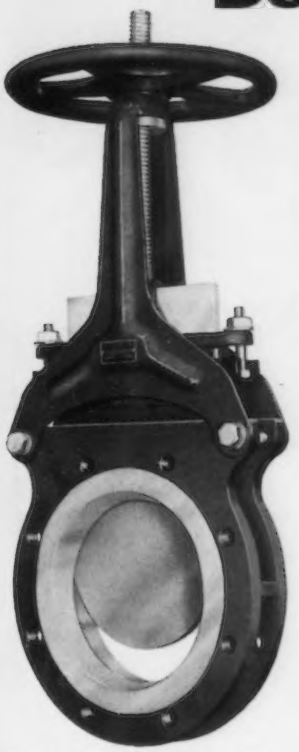

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NEW

Seat and gate are now machined by a method exclusively DeZurik's to insure perfect alignment and tighter shut off. This "self-aligning" eliminates alignment problems when repacking the valve.

and Better!

The redesigned superstructure presents a neater, more streamlined appearance, yet retains the strength of previous DeZurik Valves.

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All other types of water treating systems, including strainer valves, air wash systems, filter sand and anthracite beds and all filter repair and replacement parts. Over 50 years experience building new and modernizing old water treatment plants.

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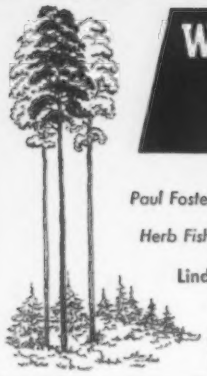

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always on
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1 can be
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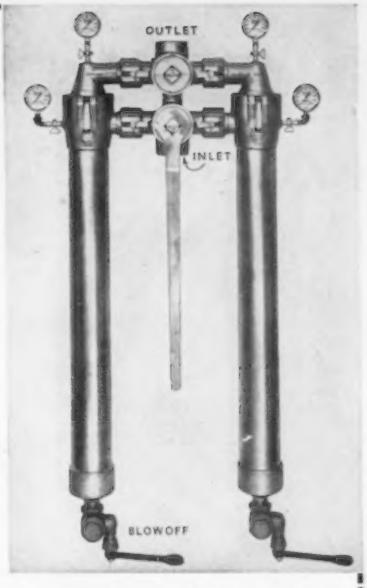
and the other
continues
operating



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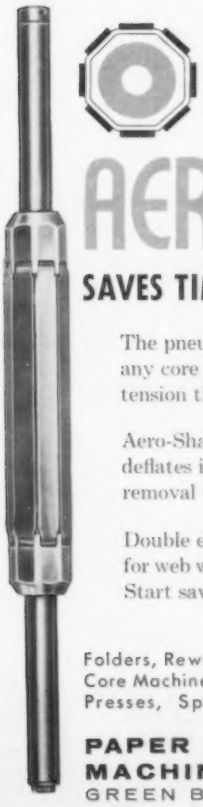

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The pneumatic Aero-Shaft holds any core firmly providing uniform tension that allows faster roll speeds.

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Double expanding rib section available for web widths over 40". Write today. Start saving with Aero-Shaft!

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PAPER CONVERTING MACHINE COMPANY
GREEN BAY, WISCONSIN

AHCO SUGGESTS

Don't Compromise on Quality — Choose The Right Defoamer For The Job

From AHCO's extensive range of defoamers you can choose the right product for virtually every application. There are defoamers with FDA extensions, highly stable defoamers for hard water conditions and pumpable pastes for bulk handling. Whatever the foaming problem, AHCO has the answer . . .

FOR THE PULP MILL

AHCO defoamers, paste and liquid, form stable emulsions. They can be added directly from drums or from stock emulsions, and are effective under varying conditions of temperature and pH. All have FDA extensions.

FOR PAPER MACHINE SYSTEMS

AHCO offers liquid and paste defoamers with FDA extensions. They are easily emulsified in soft or hard water and form stable emulsions. AHCO defoamers will not adversely affect sizing; are suited to a wide range of pH conditions.

FOR PAPER COATING

AHCO offers paste and liquid defoamers specifically formulated for paper and board coating colors. All have FDA extensions. They form highly stable emulsions and can be used either from stock solutions or directly from containers.

FOR SPECIALTY APPLICATIONS

AHCO's Research and Technical Service Departments stand ready to assist you with any specific foaming problems. Ask your AHCO Representative for complete details.

For More Information About AHCO Defoamers Call, Write or Wire

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Expertly engineered, simply designed in the famous Lunkenheimer tradition for maintenance cutting operation. Ball floats and seals against seats . . . fast on-and-off action . . . positive shut-off . . . minimum friction and wear . . . Request literature from your Lunkenheimer Distributor or write to The Lunkenheimer Co., Box 360, Annex Station, Cincinnati 14, Ohio.

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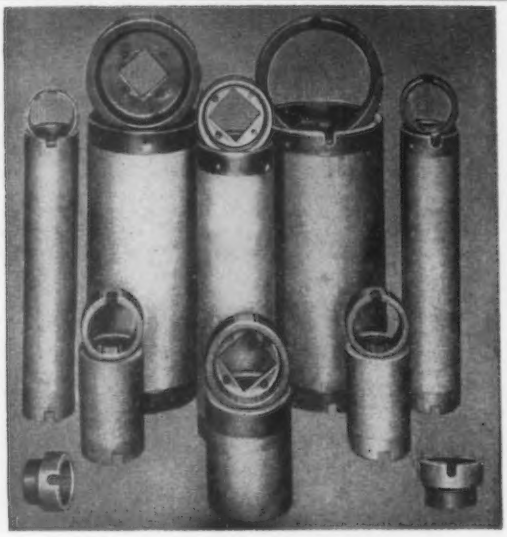

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Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

Samples of caps or cores will be gladly submitted

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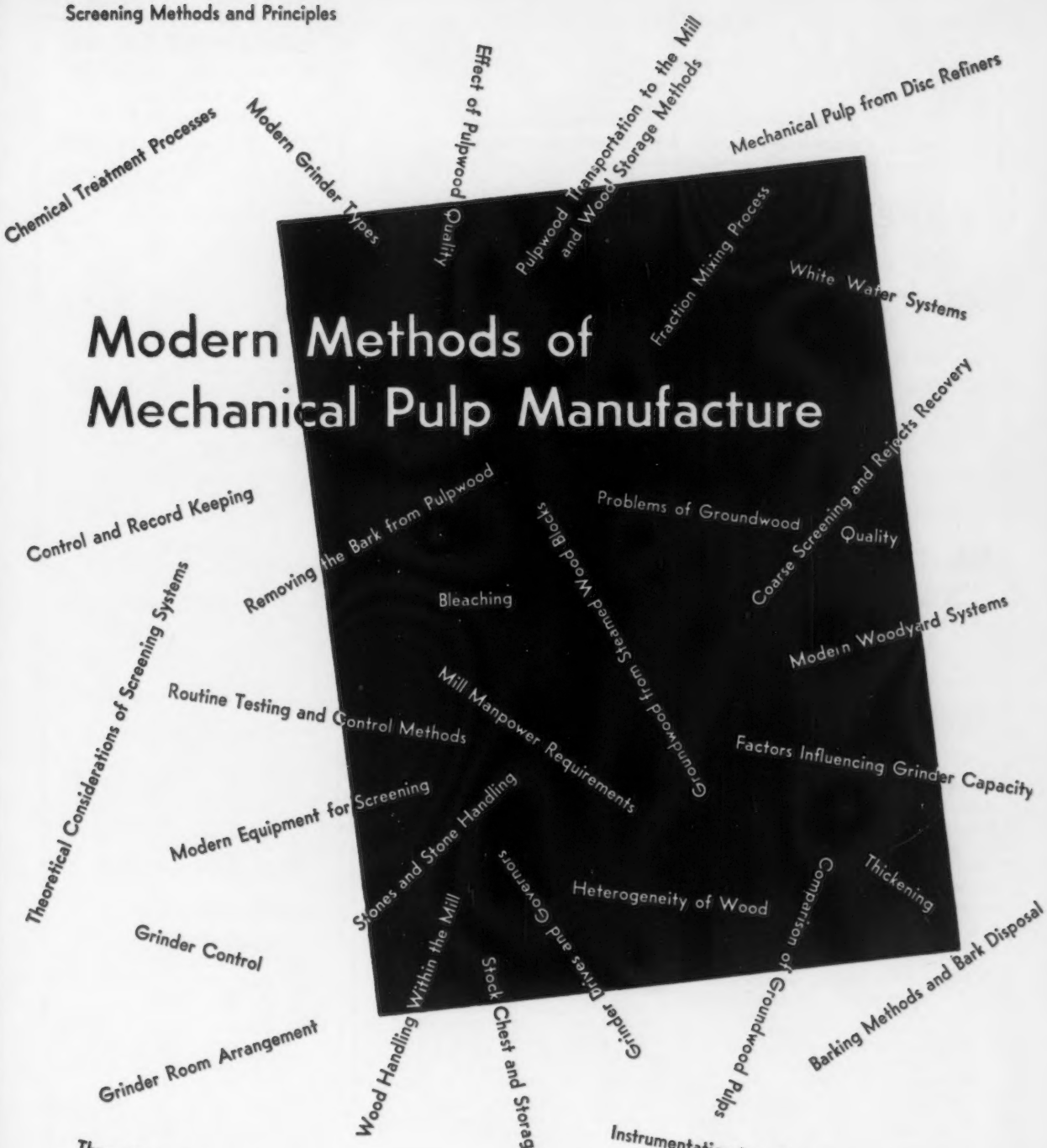

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YOU SHOULD HAVE:

1. Degree in Mechanical Engineering.
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This is an excellent opportunity to use your initiative and creative ability in an atmosphere conducive to accomplishment.

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Send complete resumé in strictest confidence to: Box No. 61-40 care of Paper Trade Journal.

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Wood-Pulp Chemist required for R & D to take charge of Fiber investigation — selection and testing of resulting product.

His experience must cover some of the following:

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Insulation or Hardboard } Manufacture
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Right man can become either Research Manager or Plant Manager within 3 years. Salary Open.

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Challenging opportunity in product and process development involving paper impregnation and coatings. Experience desirable.

Send complete resume including salary requirements to

A. L. Gordon
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Graduate, with three to five years' experience in the pulp and paper industry, for an integrated bleach kraft pulp and specialty paper mill. Involves work in mill control and/or process control and development. Opportunity for a competent and ambitious man to advance to positions of greater responsibility. Excellent benefits and good starting salary. Please furnish complete particulars as to experience, education and reference to: Box 61-27 care Paper Trade Journal.

M-6

PRODUCTION SCHEDULER

Southern pulp and paper mill with converting operations seeks an experienced production planner and scheduler to head up established planning and scheduling department. Prefer college graduate with at least 5 to 10 years experience. Give all past experience in first resume to Box 61-21 care Paper Trade Journal.

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1—36" 6-color Cottrell Heinrich Flexo Press
1—33" 6-color Modern Clipper Flexo Press
1—33" 4-color Wolverine Hydro-Printer
1—32" 3 color Flexo Tail Printer
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1—162" Type 10 Model 19 Shear Cut
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1—72" Type 10 6A, Anti Friction Bearings
1—62 and 42" 26-3A
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1—62"—28-3BT
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1—50" 28-3D
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1—32" 26-3A
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1—102" Langston, 60" Rewind Capacity
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1—60" & 1—40" Fales Model "C"
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1—60" Inman With Reeves Drive
1—52" Moisel (Shear-Cut)
2—40" Beck Razor Blade Slitters
1—40" & 1—60" Kidder SH 40" rewind
1—24" 1—30", 1—36" & 1—40" Kidder S.L. & 1—36" SLN

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1—166" Clark-Aiken Duplex Sheeter w/layboy
1—100" & 60" Hamblet w/layboy
1—90" M&W Sheeter, Overlapping Delivery and Layboy
1—84" Hamblet Duplex Heavy Board Sheeter
1—78" M&W Sheeter & Layboy
1—75" Hamblet Duplex—Erie Layboy—Overlapping Delivery
2—72" Hamblet Single Sheeters with Layboys
1—64" Hamblet sheeter with layboy
1—48" Mamco Layboy
1—55" CSH-Beck Sheeter
1—45" CCSH Beck Sheeter
2—38" x 24" 4-Post Seybold Die Presses
5—Sheridans: 66" x 44", 60" x 30", 50" x 24", 44" x 22" & 36" x 18" and 1—Ford-Smith: 48" x 40" and 2—Hobbs 24" x 44"
Embossers 48" 55" Waldron & 50" Heavy Duty Hudson Sharp Tinter-Embosser
1—40½" Hudson Sharp Toilet Interfold
1—Multipath Bag Machine—4 Color Holweg Printer
1—Honsel Millinary Bag Machine (Model S-50) Wide Range & 3 Color Printer
1—Strachan & Henshaw Bag Machine—2-color Aniline Printer
1—Model 4 Potdevin Sack Machine
1—Nagel Ryan bag machine 4 color printer
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1—60" H/S Household Wax-Roll Winder
Lawtomatic Towel & Tissue Wrappers
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2—Hudson-Sharp Gift Wrap Folders
1—40" International Paper Box Machine Co.'s Sheet-Fed Carton Waxer
1—46" Norwood Glassine Super Calender Stack

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Help Wanted Advertisements continued on page 64

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BEATERS

2—3000# Downingtown 60" x 67" roll; like new
1—1500# Dilts Breaker Beater; roll 54" x 64" w/75 h.p. motor

CALENDER STACKS

1— 80" P & J 7 roll; heavy duty
2— 82" & 86" Lobdell five roll
1— 96" B-C 6 Roll—heavy duty
1—104" B-C 8 roll
1—115" B-C 7 roll
1—124" Downingtown 5 roll
1—124" Downingtown 6 roll
1—126" Farrell 9 roll—w.c. bearings

CHIPPERS

1— 96" Murray 6 knife; A-F Brng

COATERS

1— 24" Waldron Coater & Embosser
1—60" Egan Air Knife—New 1956.
2— 65" & 76" Mayers

COMPLETE PAPER & BOARD MACHINES

3—Sandy Hill 81" trim single cyl. Tissue
1—M & W 72" Trim Fourdrinier paper machine
1—B-C 100" 7 cyl. Board Machine Complete
1—M & W 72" Trim Yankee Fourdrinier
1—Rice Barton 84" Fourdrinier

CYLINDER MOLDS

1—104" face x 36" dia
8—114" face x 36" dia. w/ rubber couches
8—124" face x 36" dia w/rubber couches

CYLINDER WET ENDS

1—Single cylinder; 99" face x 48" dia.
1—114" 7 cyl. Wet End, complete through main presses
1—124" 7 cyl. Wet End, complete through main presses

DRYERS—HYDROSTATICALLY TESTED

24" Dia.:
39— 46" face; Chrome plated
1—156" face w/gear and steam joint

28" Dia.:
3— 70" face w/gears & bearings
3— 73" face w/gears & bearings
3— 76" face w/gears & bearings
3— 77" face w/gears & bearings
2— 84" face
2— 84" face w/accessories

36" Dia.:
1— 42" face
2— 44" face; 2—46" face
3— 70" face w/gears & bearings
11— 72" face w/gears & bearings
1— 74" face Lukenweld w/A-F Brng
8— 75" face w/gears & bearings
26— 76" face; complete section
9— 76" face w/gears & bearings
2— 77" face w/gears & bearings
1— 78" face w/gears & bearings
2— 80" face
5— 84" face
11— 84" face; complete section
18— 90" face; complete section
9— 92" face; complete section
1— 96" face
1—138" face
10—160" face

42" Dia.:
23— 73; 74; 76" face; complete section
46— 96" face w/gears, frames & bearings
1—120" face
1—160" face

48" Dia:
49— 46" face; chrome plated
12— 82" face; complete section
3—84" face
21—106" face w/gears & bearings
2—110" face w/gears & bearings
10—123" face w/gears, frames & bearings
1—128" face

DRIVES—ENCLOSED RIGHT ANGLE

1—Beloit 65 h.p. Ratio 2.88 to 1
3—Jones 65 h.p. Ratio 4.83 to 1
1—Michigan 92½ h.p. ratio 10.1 to 1
1—Phila. 28 h.p. Ratio 10.56 to 1
1—50 h.p. Reliance VS with MG set & controls
1—Cleveland 47 h.p.—ratio 3 5/9 to 1
1—Cleveland 23.5 h.p.—ratio 3 5/9 to 1
2—Falk 50 h.p. Ratio 3.529-1
3—Beloit 75 h.p. Ratio 3, 4 & 4.6875 to 1

EMBOSSERS

1— 80" Hudson Sharp; A-F Brng
2— 62" Textile Machinery Co., w/drives

EXTRACTOR ROLLS—DOWNINGTOWN

1—128" face x 24" dia.—complete section

FELT CONDITIONERS—VICKERY

1—New Bird—218" Max. cleaning area
1—New Bird—166" Max. cleaning area

FELT GUIDE

1—New Nash Wet Felt Guide, Style 535RH

FLAT SCREENS

1— 4 plate Tailing Screen
2— 12 plate IMPCO w/Dunbar Drives
8— 14 plate IMPCO—Bronze Vats S.S. Plates

"HYDRAPULPER"

1—Dilts 16 ft. Batch type complete w/125 h.p. motor

INLETS & HEADBOXES

1—106" Valley w/8" distributing roll
1—131" Valley w/10" distributing roll; SS lined
1—131" Beloit Pressure Type; SS rolls—1100 f.p.m.

JORDANS

2—Appleton #1 w/A-F Brng
1—Horne w/A-F Brngs
4—Shartle Miami #2 w/A-F Brngs
1—Jones Midget—Used 2 months

MOTORS 3 PH 60 CYCLE

1—100 h.p. GE; 440 v; 695 r.p.m.
1—250 h.p. West. syn. 440V., 450 r.p.m.
1—300 h.p. West; 2200 v; 503 r.p.m.
1—350 h.p. GE; 2200 v; 720 r.p.m.; Synch

PAPER MACHINE DRIVES

1—De Laval 100 h.p. steam turbine w/reducers

PULP MILL EQUIPMENT

1—Lannoye #1 Pulper
1—Murray 2 deck Chip Screen, 5 ft x 14 ft.

PUMPS—OPEN IMPELLER

47—Centrifugal Stock and Water Pumps

REELS

1—100" Kohler automatic two arm unwind reel; 60" dia rolls; new condition
1—109" two bowl upright
1—123" Beloit—2 bowl
1—126" Beloit Aldrich surface drive type
1—146" B & S pope type w/Reliance drive

REFINERS

2—#1 Claffin; A-F Brng
1—24" Bauer Double Disc w/two 50 h.p. motors
1—24" Downingtown Weiner; new
1—36" Bauer, Model 185 w/2—75 h.p. motors
1—Dilts #4 Hydrafiner
1—Dilts 36" Classifiners AF Brng.
1—Claffin #2—New fillings AF Brng.

ROLL GRINDERS

1—124" x 30" Farrel w/crowning device
1—208" x 32" Farrel w/crowning device

ROLLS

Distributor—Stainless Steel
2— 8" dia x 115" face
1— 6½" dia x 115" face
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20 Misc. Sizes Dwngs Available
Press—Rubber or Brass Covered
71 Miscellaneous sizes. Drawings available
Felt—Steel, Brass, Rubber Covered
335 Miscellaneous sizes. Drawings available
Calender—Chilled Iron
72 Miscellaneous sizes. Drawings available

ROTARY SCREENS

5—Bird #3A, Model 100 w/copper vats
1—Jones Leithwalk copper lined
2—24" Shartle Selectifiers w/motor.

SHEETERS—WITH BACKSTANDS

1— 45" Beck w/Jogger
1— 50" Finley
6— 56", 60", 66" & 70" Hamblets
1— 65" Kidder w/elec. eye and layboy
1— 76" Beloit Duplex
1— 82" Hamblet
1— 85" Hamblet duplex w/layboy
1—105" Hamblet
1—112" Beloit Duplex Board Cutter; A-F Brng

SLITTERS & REWINDERS

17¾" Maximum Rewind Diameter
2— 42" Cameron Type 26-2A

24" Maximum Rewind Diameter
2— 42" Cameron Type 6
1— 42" Cameron Type 6 Shear Cut
1— 62" Cameron Model 6
1— 62" Cameron Type 8
1— 72" Cameron Type 9-5

30" Maximum Rewind Diameter
1— 60" Langston Shear Cut
1— 72" Cameron Type 10; A-F Brng
1— 72" Cameron Type 10 Shear Cut; A-F

36" Maximum Rewind Diameter
1— 70" Variable Speed Center Winder
1— 62" Cameron 8-10
1— 72" Cameron Model 8-10
1— 82" Cameron 10-11; A.F. Brng.

42" Maximum Rewind Diameter
1— 40" Egan Shear Cut; A-F Brng
1— 60" Kidder Model SH Low Bed
1— 72" Beloit Shear Cut
1—136" Cameron Type 18; A-F Brng
1—161" Cameron Type 18 w/60 h.p. Reliance VS Drive

48" Maximum Rewind Diameter
1— 86" M & W Four Drum Shear Cut
1—152" Langston Shear Cut

60" Maximum Rewind Diameter
1—112" Cameron Type 18
1—120" M & W two drum w/75 h.p. drive
1—120" Langston
1—136" Langston; AF Brng; shear cut

SLITTERS & REWINDERS—DOUBLE REWIND

18" Maximum Rewind Diameter
1— 42" Cameron 26-7D for Cellophane
1— 52" Cameron Type 26-3A

30" Maximum Rewind Diameter
1— 42" Essex Shear Cut; A-F Brng
1— 42" Cameron Type 28-3

STOCK CLEANERS

2—1000 g.p.m. Shartle Hydrafuges w/motors
14—Bird Dirtecs; 2" & 6" bronze
1—Bird Dirtec 12". Rebuilt by Bird
21—4" Vortraps—Bronze

STOCK REGULATORS

2—Braemer SS; 25 t/d cap; Foxboro controls
2—Poirier; 25T /D cap

SUCTION COUCH ROLLS

1—125" face x 18" dia—bronze brng
1—144" face x 30" dia—roller brng

SUCTION EXTRACTOR ROLLS—DOWNINGTOWN

1—105" face x 19" dia
1—126" face x 22" dia; complete section
1—134" face x 18" dia.; A-F Brng

SUCTION PRESS SECTIONS

1—114" face x 20¼" dia. R. C. Complete section
1—120" face x 18" dia—R.C.—Roller brng
1—126" face x 24" dia. R.C.; A-F Brngs; new 1951

SUPERCALENDERS

2— 30" Norwood 4 roll
2— 63" Norwood 8 roll; A-F Brng
1— 92" Norwood 7 roll w/drive
1— 53" Norwood, 13 roll, glassine; A-F Brngs

TOWEL & NAPKIN FOLDERS

1—Hudson Sharp 50", single fold—towel
2—Paper Converting ¼ fold—napkin
1—Paper Converting single fold—towel

THICKENERS

1—Shartle—Cylinder 131" x 36"—16" R.C. Couches
1—Shartle—Cylinder 36" dia. x 72" face.

TRIMMERS—POWER BACK GAUGES

1— 38" Seybold w/motors
1— 50" Seybold Twentieth Century
1— 57" Seybold Precision
2— 65", 84" Seybold Daytons

UNWIND STANDS—CONSTANT TENSION

1— 34" Cameron Type CT—Electric Eye
1— 72" Cameron—water cooled brake
1— 82" Cameron—water cooled brake

VACUUM PUMPS

8—H-4, ½H-5, & H-5 Nash
2—L-5 & L-7 Nash
5—#2, #4, & #7 Nash Hytors
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